

ATHLETIC JOURNAL

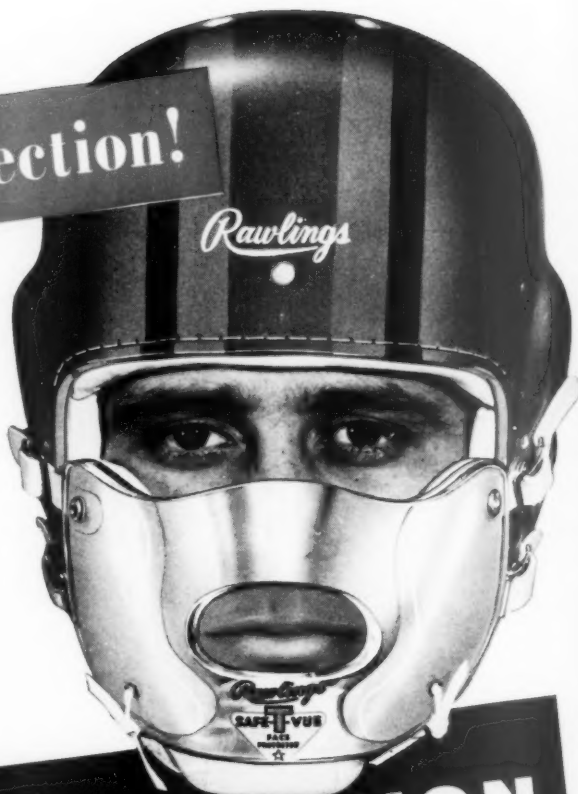
VOL. XXXV No. 8

April, 1955



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M. M. ARNS
Associate Editor

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The ATHLETIC JOURNAL

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Volume XXXV

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FRONT COVER ILLUSTRATION

Our feature article this month is "Drills for Linemen," prepared by "Gus" Lacy of Fork Union Military Academy. The twelve drills are illustrated with Athletic Journal sequence pictures. The drill shown on the front cover is called the balance drill and is explained on pages 9 and 10. Photo taken for the Athletic Journal by Bob Drumwright.

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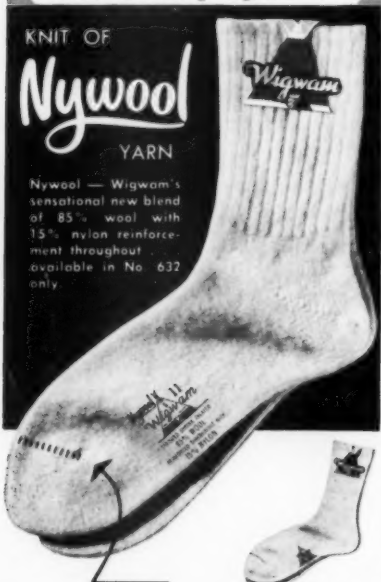
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NEW YORK State Employment Service conducts a camp placement service. Any coaches looking for summer camp work in New England and the Middle Atlantic states should contact the Division of Employment, 1440 Broadway, New York 18 . . . Mention of New York brings to mind that William Skinner and Sons, manufacturers of many fine athletic fabrics, have just opened their own new building facing the Public Library and Bryant Park at 12 West 40th Street. It is decorated and furnished in the most modern manner and could conceivably serve as a model for office buildings of the future . . . C. J. O'Connor, president of the United States Lacrosse Coaches Association, writes: "The prediction in *From Here and There* that face guards will be standard football equipment in a few years reminds us of the first face guards in lacrosse. In 1928, James Miller, St. John's College, Annapolis, Md., lacrosse captain, was one of the first lacrosse players to wear a face guard. At first they were used only to protect an injury. It was a long time before the face guards were standard lacrosse equipment. However, since 1948, all lacrosse players have been required by the rules to wear a protective headgear with an approved face guard. General acceptance of the football face guard is just around the corner." . . . Kenneth Hulsander leaves his post as football coach at St. Frederick High School in Pontiac, Michigan to join the staff of his former coach, Vince Di Francesca, at Iowa State. Hulsander played under Di Francesca at Western Illinois State.

* * *

GAYLE ROBINSON, assistant on Jack Heppinstall's training staff at Michigan State, is the co-holder of the school's 75-yard dash record . . . Colorado, Kentucky, and North Dakota are the latest state associations to make plans toward owning their own headquarters buildings. All state associations contemplating building

their own buildings should visit the Kansas Association headquarters . . . The University of Arizona's baseball team plays only eight games out of a 42-game schedule away from home . . . This issue has a father and son tinge. On page 36 in the Drake Relays announcement appears a picture of Ralph Fessenden, Illinois' great quarter-miler. Elsewhere in the issue appears an excellent article on tackling by his father, Douglas Fessenden, a former Illinois great and now a highly successful coach . . . Twenty of the states have a continuing summer baseball program after the schools have closed . . . Rex Benoit, assistant basketball and football coach and head track coach and trainer at

(Continued on page 65)

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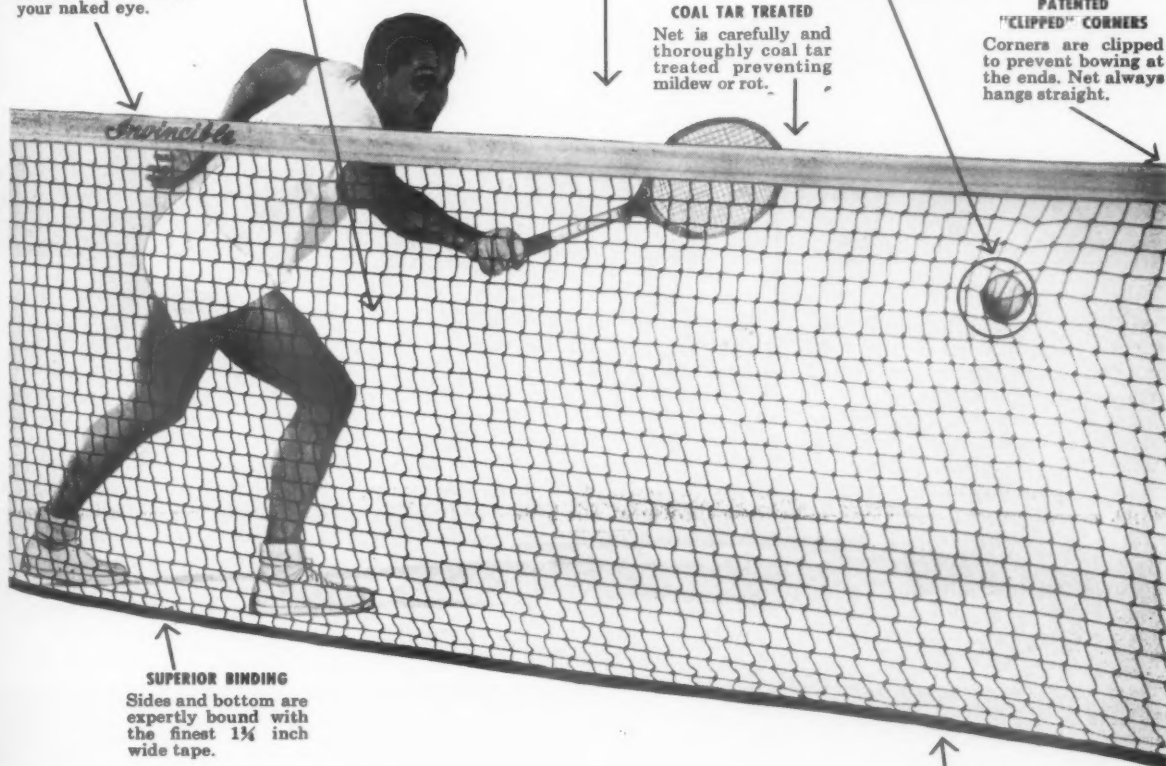
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FEW things seem to help the football coach more than the use of a number of drills, which not only keep the players interested and fascinated during practice, but also aid in the training and preparation of the team.

Very often a line coach or even a head coach in high school will have to take a group of twelve or fifteen linemen and practice them on some phase of football. If the coach centers his attention on one or two of the linemen, there is always the possibility that the others will slack up in their work. The majority of the drills which

possible. However, they are not meant to be drills on shoulder blocking or tackling, since there is no better way to practice these fundamentals than by conducting blocking and tackling practices.

Around the Circle — Series A. The drill begins with all of the linemen spread into a circle. From his position on the circle, one player using a shoulder block, makes contact with the man nearest him. After jolting this first man, the player who is running the circle continues until he has shoulder blocked every man around

the circle to apply the blocks.

If a coach has a large squad of linemen, and some weigh considerably more than others, he may find it wise to divide the group according to weight. Often, the larger players are able to bowl the smaller ones over in this particular drill.

This drill is an excellent conditioner, because it gives the blocker about ten blocks in a row, prepares the linemen for rough contact, gives some blocking practice, and provides an opportunity for the players to practice block protection from a semi-standing

Drills for Linemen

By E. H. LACY, JR.

Assistant Athletic Director, Fork Union Military Academy

we will discuss are designed to keep a large number of players busy at the same time, with each one taking an active part in every drill.

These drills have been designed to employ as few mechanical devices as possible. We have the players replace the sleds and dummies wherever possible.

Most of the drills in this article are aimed at conditioning and toughening linemen, and embody as many phases of blocking and tackling as

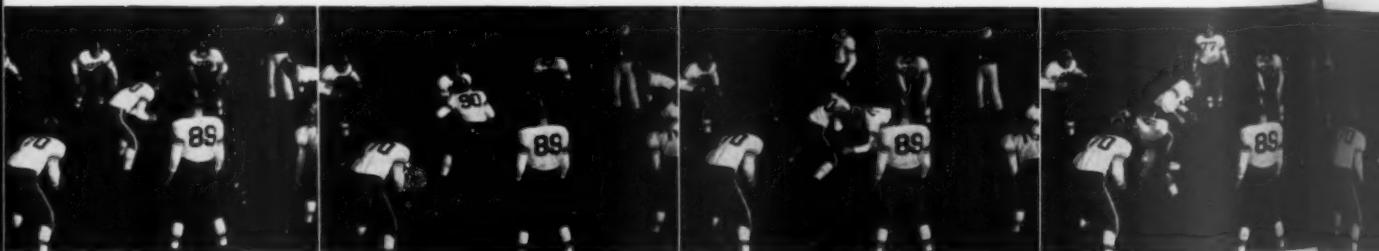
the circle and has returned to his original position. Naturally, each of the players around the circle will prepare himself for the jolt as the blocker approaches.

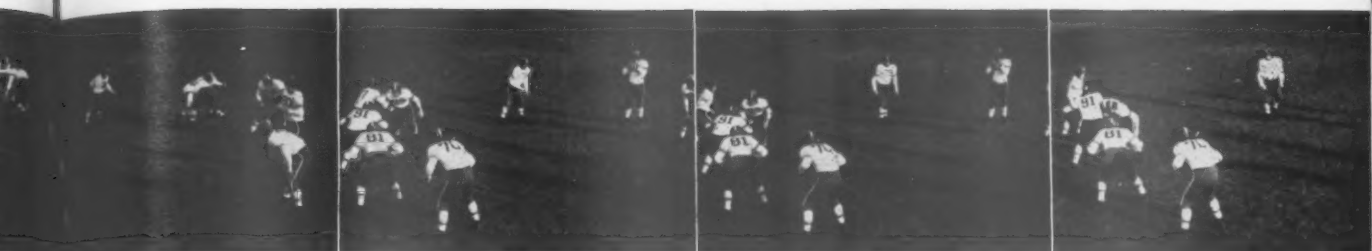
Illustrations 2 and 3 show that the blocker can make contact and continue on to the next player without being thrown off his feet.

This procedure may be varied by having the player who is running the circle charge right into each man, and instructing the players around

position.

Shooting the Gap — Series B. For this drill the coach instructs all of the linemen to take the positions shown in Illustration 1. The man out in front is told to charge low between the first two blockers, who close the gap by blocking with their inside shoulders. The defensive charger goes right on down the line from group to group until he is completely stopped. Whenever he is completely stopped, he simply sets up again and





prepares to split the next pair. A hard-charging lineman with plenty of power and tricks occasionally is able to fight his way to the end of the line without being stopped. When he reaches the end, he takes his place as an offensive blocker and one of the players at the front of the line becomes the charger.

This drill gives each player contact each time, and is good for combining both blocking and charging practice. It teaches penetration, for as soon as the defensive player has passed one group, he must plow into the next

AROUND THE CIRCLE

The coach assigns a number to each of the players around the circle. He starts the drill by calling out a number, and the man assigned that number charges at the man in the center. The man in the center should attempt to block this man. After making contact, the player who charged in should continue on across the circle (Illustration 6). After contact has been made, the coach should immediately call out another number, thus sending another player running

must locate his opponent before he can block him.

Occasionally, the man in the middle will not react, and the man who is charging in will come in at his back. Contact should not be made in this case because of the danger of injury, but it will be evident to all that the middle man did not react properly.

The same man should be kept in the center until all of the players have charged against him. Practice on this drill usually serves to demonstrate to any player the value of alert-



group. The player who is doing the charging receives a good conditioning workout and practice in remaining low, for the two-on-one situation stops him completely whenever he straightens up.

Man-in-the-Middle—Series C. At the start of this drill the players are formed in a circle, except that one player is stationed in the center, as shown in Illustration 1. This player must be prepared to protect himself in all directions.

SHOOTING THE GAP

toward the middle man. By varying his numbers, such as calling, *seven, two, five, one, eight*, the coach can send players toward the center from all angles, and the man in the center must be prepared to meet force from any direction. This drill teaches quick reaction, for the man in the middle

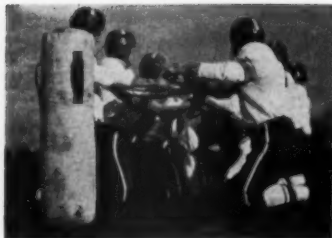
ness, proper balance, and quick reactions.

The Tunnel — Series D. Illustration 1 shows all players except one formed into a tunnel. Then one player is designated to charge through this tunnel on all fours, and when he is through, to take his place with the other players forming the tunnel, while another player goes through.

The only contact in this drill occurs whenever a player going through the tunnel allows his body to get too high.

MAN-IN-THE-MIDDLE





THE TUNNEL

The players forming the tunnel can then take their arms across his back, forcing him to the ground. Since the players can raise or lower the *roof* of the tunnel at will, this is an excellent drill for teaching linemen to charge low all the way.

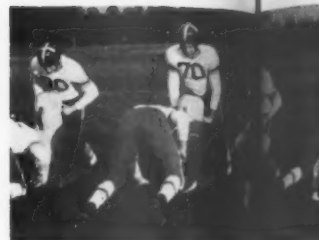
Spirit and conditioning seem to be aided somewhat if the man going through the tunnel is required to yell all the way to the end. For any player who does not yell all the way, the other players *lower the boom* (of their arms) as a penalty.

dummy, he moves it along the board.

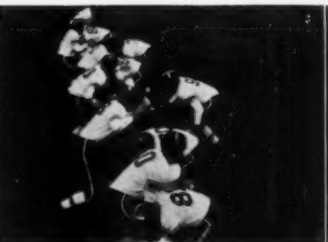
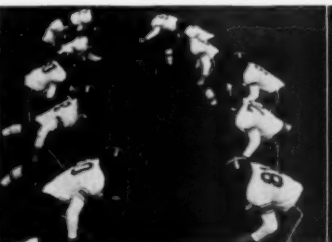
The purpose of the boards is to make sure that the blocker keeps his feet spread apart while his shoulder is in contact with the dummy. Whenever a player gets a foot in too close, he will step on the board and his cleats will slide, usually throwing the blocker to the ground. This is what has happened to the blocker on the left in Illustration 5. Notice the spread of the feet of the other two blockers in Illustrations 4 and 5.

Tackling Drill — Series F. The players begin in two lines, facing each other, with the tacklers on the right,

game, but the drill does permit the tacklers to know that they do not have to be knocked backwards by



BOARD BLOCKING



TACKLING DRILL

A dummy may be set at the end of the tunnel, and the coach may require the player either to block or tackle it.

Board Blocking — Series E. Although the form of the players is not particularly good, this is a good drill to use in emphasizing proper footwork while applying a block. Notice that the dummies have been placed on boards about four feet long, and as the blocker pushes against the

and the players on the left imitating ball-carriers.

We like to have our tacklers settle their weight down low whenever possible before making a tackle, and spread their arms wide as shown in Illustration 2.

This drill is used to give tacklers practice in absorbing a jolt from a ball-carrier. When the two lines of players meet in almost head-on contact, the tacklers are asked to absorb the power from the runners, pick the ball-carrier up, and continue to move forward. Of course, such perfect situations seldom appear in an actual

hard-running backs.

Whenever possible, we like our tacklers to get the ball-carriers' feet

TAPE DRILL





line to use as a starting point. The other strip is placed about four feet in front of the offensive linemen and about four feet above the ground. These strips can be seen plainly in Illustration 1.

By placing the nose of a football just beyond the tape on the ground, the linemen know they can put their hands just behind the tape and still

When this drill is being practiced, the quarterback should be on hand, in order that the linemen may get used to his cadence, and form the habit of getting movement started immediately upon the snap of the ball.

Open Field Drill — Series H. Any number of players in groups of three may be used. The players shown, left



off the ground (Illustrations 4 and 5) because then when the back is driven to the ground, it will be the back and not the tackler who will have to take the punishment.

be on-side but very close to the ball. This drill is repeated over and over in practice in order that the linemen

to right, in Illustration 1, are a ball-carrier, a blocker, and a tackler. The blocker obviously tries to keep the tackler from reaching the ball-carrier, while all three remain in a narrow alley.

There is no pre-arranged signal between the three players before action begins. On a whistle, all three players begin to perform their assigned duties, and each one reacts to whatever situation develops. The drill gives the blocker valuable practice in learning not to leave his feet on an open-field block.

Illustrations 2 and 3 show the back trying to help his blocker by feinting to his own right, and drawing the tackler in that direction, before cutting back to the left.

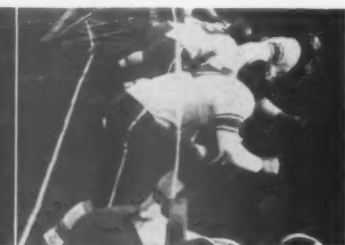
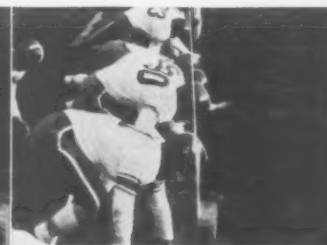
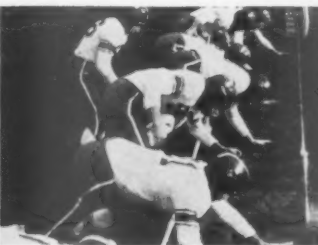
Balance Drill — Series I. This is not a particularly outstanding drill on any of the fundamental points, but it does liven up the practice session

THE Fork Union Military Academy won the military championship of Virginia last fall with a record of eight victories out of nine games. Major C. Graham Thomas is the athletic director and head football coach. E. H. "Gus" Lacy, Jr. has been at Fork Union since 1948, where in addition to his football duties he serves as track coach and director of athletic publicity.

Tape Drill — Series G. Two strips of tape or cloth are needed for this drill. One strip is placed in a straight line on the ground, to provide an exact line for a complete offensive

may become accustomed to lining up as close to the ball as possible.

Whenever a split is used between



the offensive linemen, these points may be marked on the tape so that a lineman becomes accustomed to leaving the proper spacing between himself and the next lineman.

The purpose of placing the tape just above the ground and in front of the offensive linemen is to break any players of the habit of raising up as they move forward.

whenever tackling practice is being held on a dummy. Instead of having the player tackle the dummy as it hangs on its hook, we place a little obstacle course in his path, as shown in Illustration 1. The player must begin in a four-point stance, knock away the dummies in his path, and then take a hard knock from the four players who are armed with the hand



dummies. Having a player receive numerous jolts just before making a tackle simulates game conditions to a certain degree.

The drill teaches a player the value of a sense of balance. Illustration 3 shows that any player who is not properly balanced as he charges forward will surely be knocked off his feet.

Illustration 4 shows the end of the drill, with the player about to make a tackle in the tackling pit.

Arm Strengthenener — Series J. This series, with series K and L, is designed to strengthen some portion of the lineman's body. To practice this arm drill, the players take the positions shown in Illustration 1, directly over a white line. On a signal from the coach, both players attempt to move forward, and the winner in each

BALANCE DRILL



ARM STRENGTHENER

group is the player who can push his opponent back from the line.

The player on the left, No. 79, is exhibiting the proper way to perform this maneuver, while the player on the right, No. 81, is not using the correct form. Number 79 keeps his arms straight and his elbows locked throughout the drill, and in each sequence picture he is pushing his opponent farther back from the line. He controls his opponent throughout the exercise.

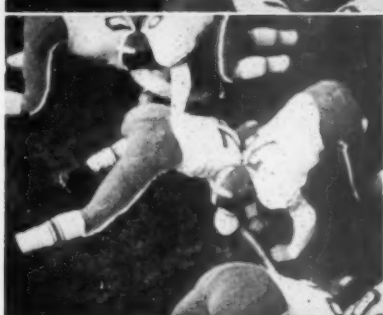
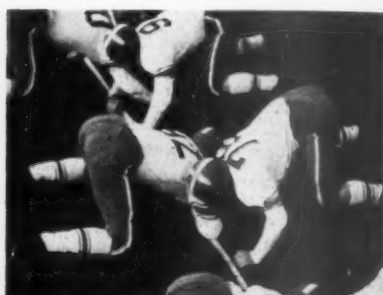
Number 81 begins the drill with an angle at his elbow, and, as a re-

sult, never gains control of his opponent. Illustration 4 clearly shows that No. 81's opponent was able to get into his body area. It also shows that No. 81 has been raised to a standing position.

Leg Strengthenener — Series K. Again, the players work in groups of two, with any number of groups working. The players take a position, shoulder to shoulder, directly over a line. Their arms are in a position where they will be able to give almost no help, and any momentum must come from the legs.

On a signal from the coach, all players try to move forward and push their opponents backward from the line. This maneuver can be accomplished only by churning the legs, and is a muscle-building practice.

LEG STRENGTHENER





BLOCK PROTECTION

It appears that both of the players in the group in the center of all the pictures have allowed their tails to get high. This is caused because the players are apparently of equal ability and leg power. Throughout the sequence of pictures, the players never lose their shoulder contact, yet neither is able to push the other away from the line. Consequently, both players continue to drive with their legs, moving only a little bit sideways.

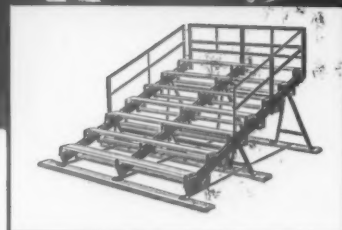
Block Protection Drill — Series L. This drill, the arm strengthener, and the leg strengthener, are repeated at each practice session. The block protection drill is used so that the defensive linemen may become accustomed to taking pressure on their forearms and keeping blockers from reaching their bodies. The players shown on the right side of Illustration 1 are placed on their knees, with one arm down, so that the only power they can exert must come from the slightly extended arm. The players on all fours are instructed to press against the other players' arms.

Obviously, a player who is using his shoulder and entire body weight can push his opponent's arm back, but if both players will exert about equal pressure, a good exercise will benefit the player who is using only his arm.

Illustration 2 shows that all of the players on the left have succeeded in pushing their opponents' forearms back. However, it will be noticed that the first player on the right side is managing to hold his opponent fairly well with his arm alone.



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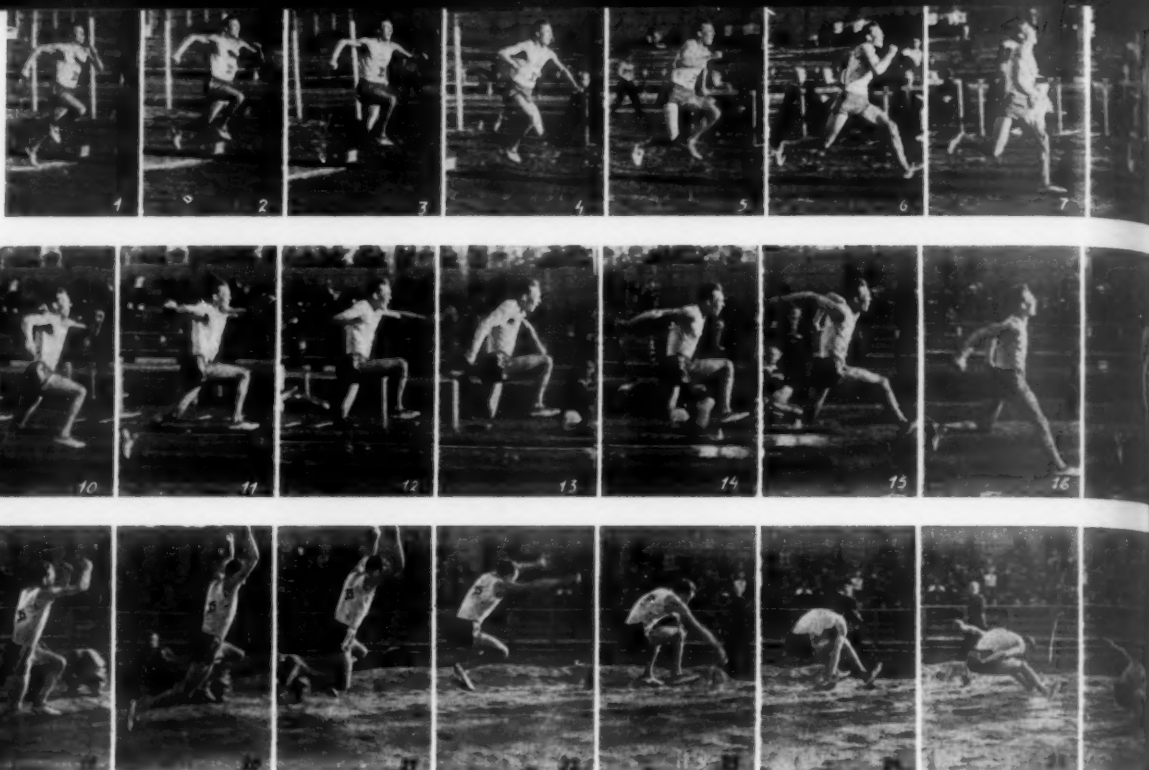
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The Hop Step and Jump

By **RICHARD V. GANSLEN**
University of Arkansas, Fayetteville, Arkansas

Very little material has been written on the hop step and jump. Because it is an Olympic event, and hence an event at major track meets in Olympic years, we are presenting this technical analysis. The Editors.

HISTORICALLY, the running hop step and jump is one of the oldest track skills known, since it dates from the earliest Greek times. The hop step and jump was one of the principal events in the earliest Olympic Festivals where jumps of 60 cubits were recorded. Unfortunately for modern record keepers, the exact length of the Greek cubit has never been accurately determined so we do not know how good the early Greek jumpers were. If we evaluate the cubit at 10 inches, which some authorities seem to agree upon, the early hop step and jumpers were clearing better than 50 feet some 2500 years ago. There is good reason to think that the cubit is worth more than 10 inches.

We may make several observations about this event: 1. There is a gen-

eral lack of appreciation on the part of athletes and their coaches with respect to the complicated nature of the hop step and jump. 2. The United States abounds in good hop step and jump material. 3. There have been any number of fine performances in this event both here and abroad, recently and in the past, by men who had little knowledge of the basic form which is necessary in order

DICK GANSLEN competed at Columbia in the late 1930's in the pole vault and the hop step and jump. He toured Japan in 1937 with the All-American track team where he jumped 48'2". In 1947, at the age of 30, he finished second in the National AAU Meet. This past winter, while acting as advisor to the Cuban Olympic Association, he jumped 43'6". He has taught at Springfield, Rutgers, and Illinois. While at Illinois, Ganslen served as coach of the field events.

to hop step and jump efficiently.

The future of the hop step and jump is very bright. In presenting the results of a cinematographic-mechanical study of this event to a group of research associates at Springfield College in 1939, we predicted an eventual world record of 54 feet in the event and supportive evidence was presented to substantiate this prediction. Since that time, steady progress has been made toward this goal which is nearer realization today than it was at the time the prediction was made.

Fundamental Understanding

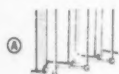
The hop step and jump, like every other sport skill, is based upon established laws of physics and mechanics. Success in this event will only be proportional to the athlete's understanding of these basic principles.

The distance a man travels in a jump is determined entirely by his take-off velocity and his angle of projection. Any other gymnastic movements he executes in the course of a jump merely help him to realize the

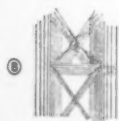


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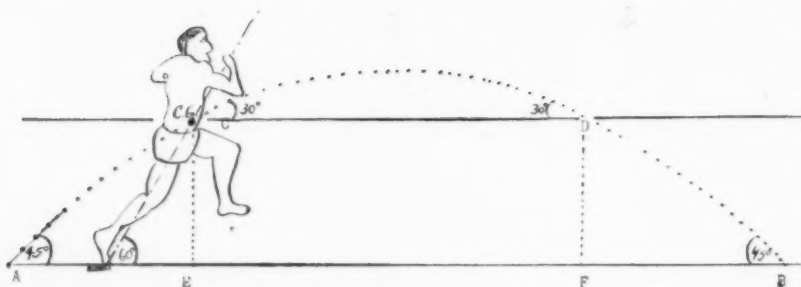
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True projection angle at the center of gravity for the jumper does not correspond to the take-off angle when the flight path is mathematically computed. Very few jumpers manage to obtain a 30° angle. The formula to compute true jump distance must be corrected to account for distance loss, AEC, and gain in distance, DFB. In the hop step and jump take-off the angle must always be less than above-more body angle (forward lean) (Illustration 1).

full potential existent in the jump, resulting from his run-up and spring into the air.

Contrary to many published views, the maximum distance in the broad jumps is not achieved when the take-off angle of the body's center of gravity is projected at an angle of 45 degrees, but the greatest distance will be achieved when the angle of projection is closer to 25 than 30 degrees. This statement can readily be verified.

Two factors influence the thinking in this contradiction: 1. When the angle of projection of the body is ascertained, we must keep in mind that the center of gravity is not projected from the ground, but from a point at about the level of the waist or belt line. In Illustration 1, we have shown how an angle of 45° from the horizon as a point of reference no longer approximates this figure when a parabolic curve is drawn through the center of gravity of the jumper. A take-off angle of 45° implies a maximum loss in forward speed and a maximum gain in height; whereas, when the jumper goes up at a minimal angle there is a minimum gain in height and minimum loss in forward velocity. Somewhere between these two extremes we find the optimal angle for a broad jump take-off.

From film analysis it can be observed that when the take-off lean of the jumper, measured from a line drawn from the toe of the take-off foot and extended through the center of gravity, is compared with the actual take-off angle of the jumper, which was obtained by plotting a line through his center of gravity from another line drawn parallel to the ground at the height of the true center of gravity, we find a discrepancy in angle of 30 to 35 degrees. When the true projection angle of the jumper is compared with an extended line drawn from the ground

through this point we find a discrepancy of 15 degrees. That is to say, when the jumper actually obtains a projection angle of 30 degrees, this approximates an angle of 45 degrees with the horizon as a reference point. In several tracings made from a very consistent 24-foot jumper it was found that his body lean angle was only about 59 to 60 degrees which, by averages, would give him a true projection angle of only about 25 degrees on his best jumps. Obviously, it is quite difficult to obtain a true projection angle of 30 degrees in the broad jump.

Tremendous force, applied instantly, is required in order that a jumper leave the take-off board with a true projection angle of 30 degrees. This would mean that the jumper's body lean from his toe up would be in the neighborhood of 75 degrees. From numerous calculations where all the correction factors for the flight path are taken into consideration, the best jumping distance is not obtained with a 45 degree angle of projection from the horizon. The true projection angle will be much nearer 25° at the waist level than 30°. It is conceivable that an exceptionally fast sprinter, who can jump vertically enough at the board, might well reach 28 feet in the broad jump. In the hop step and jump where the angle of take-off should be low in the hop, the inability to get great lift often works to the jumper's advantage.

Definitions

The use of the term hop step and jump is a gross misnomer. The German terminology drei sprung, triple jump, is much more appropriate. In actual practice, an athlete takes an 18 to 20 foot hop, follows this with a 14 to 15 foot step, and tries to add another 15 to 20 feet at the end, all

in a matter of one and one-half seconds. A 14-foot step is not a step by any stretch of the imagination since a leap of this nature exceeds the stride of our tallest and fastest sprinters who never exceed nine feet per stride when in full flight. Therefore, we are forced to conclude that in reality the step is another jump requiring the expenditure of tremendous energy. A failure upon the part of a beginning hop step jumper to appreciate this fact is as serious a handicap in his understanding as we can conceive. This alone is probably the principal factor which accounts for the low caliber of performance in this event all over the world.

The Approach Run

The run-up in the hop step and jump is distinctly different from the approach in the broad jump. This run must be more relaxed. The athlete should strive to achieve a style such as he sees in the low hurdler in full stride or in the pole vaulter's approach. Why do we place such great emphasis on the style of running?

The hop take-off is a very carefully controlled effort as far as force and direction are concerned. Control is lost when the jumper comes to the board all tensed up. We must keep in mind that the hop step jumper executes a series of very complicated gymnastic movements in rapid sequence. These involve arm and leg movements and a very careful control of balance.

In actual practice, a hop step jumper spends about one and one-half seconds in the air. This period in the air is longer than any other athlete spends, including high divers. The hop step jumper is confronted with three major problems at the take-off: 1. He must obtain good distance without losing very much momentum. 2. He must control and maintain his balance. 3. A rhythm which will permit full utilization of his original momentum, or that remaining to him, at the end of each landing effort must be maintained. Jumping discipline is very important in this event. The jumper may jump as hard as possible only on the final effort.

The statements about relaxed running do not imply that high speed in the approach is undesirable, but they do mean that control should never be sacrificed for speed in this skill. The greater the speed at the board, with control, the greater is the potential distance that will be achieved. Relaxed speed is the essential element in the approach.

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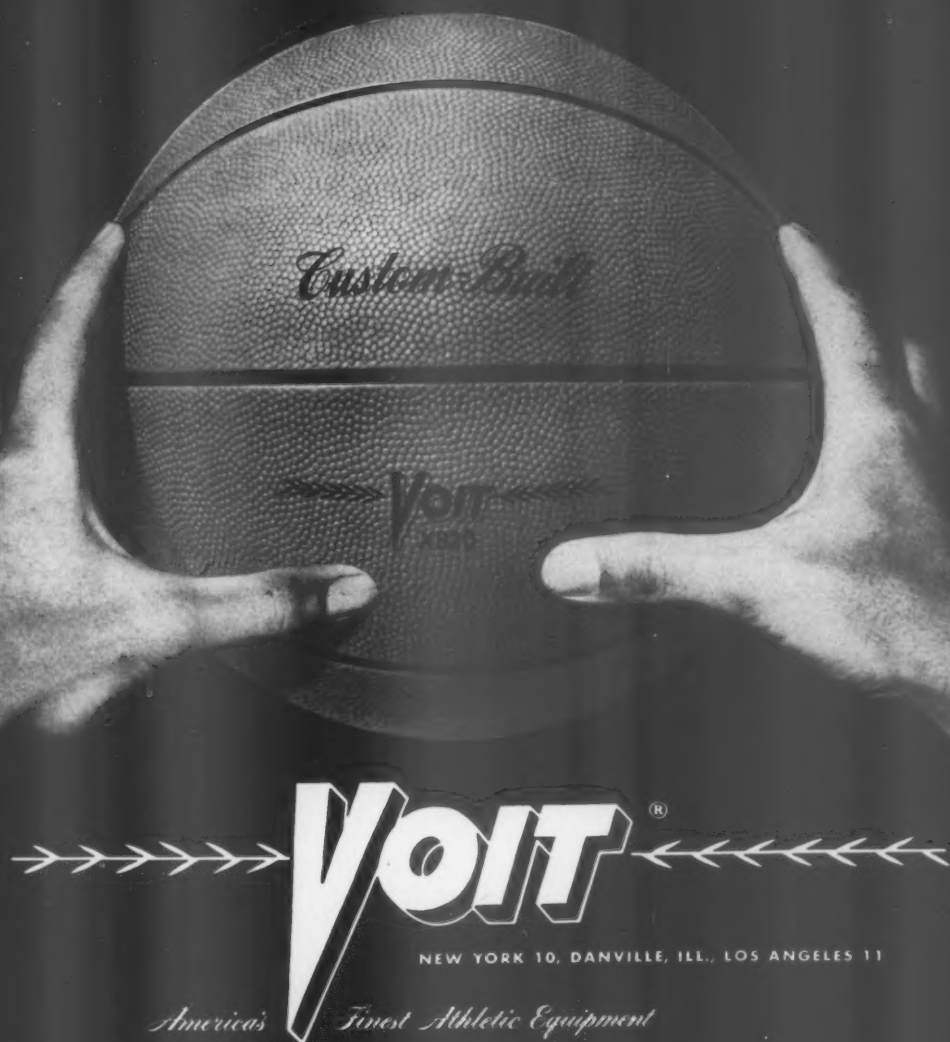
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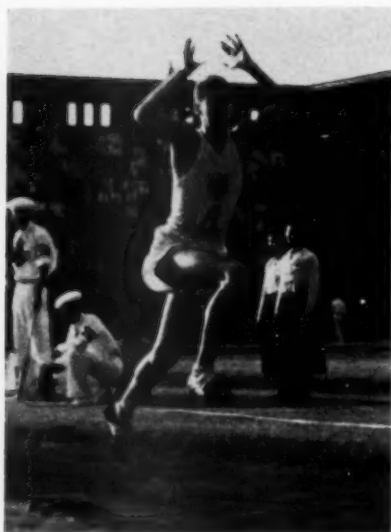


Illustration 2 shows ideal arm action in the step take-off. Notice the carriage of the jumper's arms. His chest is up, knee high, and there is evidence of considerable drive. Richard Ganslen achieved a distance of 48 feet, 2 inches in this jump.

A jumper must settle back on his heels and run flat-footed in the last few strides of the run. His weight must be well balanced over the take-off foot at the moment of departure. He must not rear back at the board as the broad jumper does, and his eyes should be kept focused straight ahead on the hop landing marker. Holding their heads down and lifting forward from the board will be difficult for converted broad jumpers because they are often taught to rock back on their heels to get height in the broad jump, which is not the prime objective at this time. The jumper's body weight must be kept up forward of the take-off leg much farther than that of the broad jumper. He must keep his take-off angle as low as possible, commensurate with the speed he is using.

The Mechanics of Jump and Hop Landings

The landing shock or force which the leg must withstand in the hop or step effort is dependent upon three factors: 1. Velocity of the jumper. 2. Angle at which his body weight comes to the ground or toward the ground. 3. His body weight. Force of impact can be easily calculated from film data and may, if proper jumping mechanics are not employed, collapse the leg at the end of the hop effort.

One of Japan's greatest jumpers, Togami, who leaped over 52 feet, broke his femur on one bad jump in

1938 and never hop step jumped again due to bad mechanics on one hard or maximal effort. These influencing factors must be kept in mind at all times by the hop step and jump prospect.

Naturally, the athlete wants to use maximum velocity. He has no control over his weight; therefore, he controls the angle of take-off as much as possible.

From the previously mentioned influencing factors we are able to deduce which type of individual, from the viewpoint of physique, should be the best hop step and jump prospect. The ideal man should be tall, six feet or better. For his height this individual should be rather lightly built. Obviously, our prospect must have strong legs and a strong back in order to take the landing punishment. Speed in the run is always a desirable characteristic, but the athlete must be a highly co-ordinated type.

Billy Brown, former L.S.U. track star, was a hop step and jump coach's dream athlete. Billy stood about 6 feet, 3 inches, weighed 165 pounds, ran the hundred in 9.5 seconds, broad jumped 25 feet, 11 inches, and reached 50 feet, 11½ inches in the hop step and jump. For a man of Brown's potential this was a very poor performance. Billy rarely devoted any time to work on hop step and jump form and at best his form was erratic. He told us that many times he could only manage a step of 10 to 12 feet and sometimes fell behind this figure. Even with bad form Brown could clear 48 to 49 feet almost any time due to his great speed and spring. Surely, here was

the man who should have been able to hop step and jump over 53 feet.

In emphasizing the height advantage and leg stretch ability factor in this event, we must not overlook the many short jumpers who have been outstanding. Most of these men stood under 5 feet, 8 inches. Dan Ahearn, Tajima, Oshima, Oda, Nambu, Togami, and a host of other unusually short men have achieved 51 feet in the hop step and jump. These short men compensated for their lack of height with great leg power and great speed. Togami, Nambu, and Tajima were all Olympic broad jumpers before becoming top hop step jumpers. A taller man has the advantage in that he can step farther forward with less lift to get a fine step of 13 to 14 feet. The short man must always make up with power what the taller man possesses in reach or duration of spring.

The greater leg stretch ability factor which the tall man possesses in the hop step jump makes it possible for him to get good distance with minimum lift just as it helps the high hurdler. When a high hurdler is shorter than six feet he is forced to jump-stride the hurdle, while the tall man merely reaches forward without apparent upward lift. This principle works equally well in the hop step and jump event.

At this point we would like to mention Da Silva of Brazil, one of the great, if not the greatest hop step jumper. Da Silva is tall, fairly slender, and very fast. He has frequently clocked the equivalent of 9.6 for the hundred. However, he is a mediocre broad jumper, seldom doing much

(Continued on page 67)

In this situation the jumper must continue to fall forward until the center of gravity reaches point B before beginning his next push (Illustration 2A).

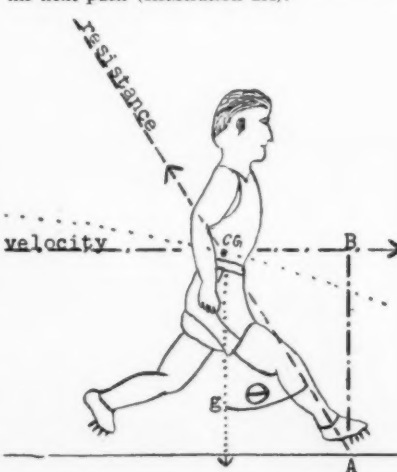
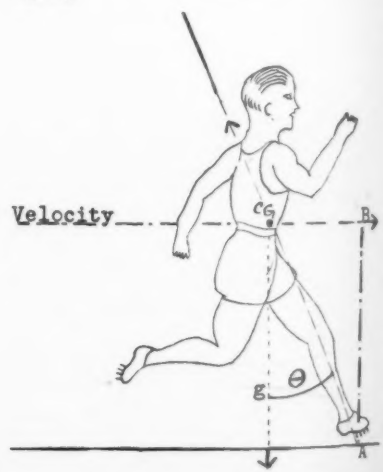


Illustration 2B shows the jumper in good position to continue forward due to better arm action and body position which brings the center of gravity more over the landing leg.



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A Seventeen Foot Vault?

VAULT seventeen feet? Is this impossible? No, it is very possible. Recently, the four-minute barrier in the mile run was broken and the 60 foot barrier in the shot put was surpassed. Some track authorities claim that we have reached our limit in the pole vault, but this statement seems far-fetched when we consider that the group of 14 foot vaulters has increased to a point where many track enthusiasts look upon a 14 foot leap as just another vault. Cornelius Warmerdam's record of 15 feet, 7 3/4 inches is over ten years old, so it is about time for the 16 foot barrier in the pole vault to be next.

Let us apply a little knowledge of our physical laws to vaulting and see if our pole vaulters have reached their limits. Who has the advantage in pole vaulting? Is he the fast man or the slow man; the tall or the short man; the light or the heavy man?

If the pole is planted correctly, the vaulter will find his hands directly above his head or slightly behind his head as he starts his take-off. At the moment of take-off, does the tall or the short man have the advantage, if we contend they are both holding the vaulting pole at the same spot?

The tall man holds it seven feet above the ground; the short man six feet. If we look at Diagram 1, which is a vector analysis, we can see that more force is transferred upward in the direction of the jump by the tall

By **WALTER R. WELSCH**

Cross Country Coach,

University of Florida

man than by the short one.

Diagram 1 shows that more force is transferred upward by the taller man even though he applies the same force to the vaulting pole. It can also be seen that the center of gravity (C.G.) is higher for the taller individual.

What about the speed and weight of the vaulter? If a coach can get an agile, heavy man, he is the best bet. The force which an individual develops is determined by Newton's second law of impact. $Ft = MV$, or $\text{Force} \times \text{Time} = \text{Mass} \times \text{Velocity}$. The heavier man who can run as fast as the lighter one will develop more momentum. His impact force will be greater, and it will carry him up to the crossbar.

Now, some individuals will say, "Hold it right there; his weight will not go up as easily since the pull of gravity is greater on him."

For convenience in calculating, let us use a 160 pound and a 192 pound vaulter. They both hold the pole ten feet from the end and hold it seven feet above the ground. Also, let us assume that they have the same speed. With these figures the angle which the pole makes with the horizontal is approximately 45 degrees and the arc through which the vaulters will swing will be 7.85 feet.

If their impact speed is 25 feet per second (speed equal to running 100 yards in 12 seconds), they will cover the arc distance in .314 seconds. The time calculated to vault through this arc is:

$$\begin{array}{rcl} \text{Length of Arc} & 7.85 & \\ \text{time} = \frac{\text{Velocity}}{25} & & = .314 \text{ Sec.} \end{array}$$

In Diagram 2 forces are indicated at the point of the impact of the vaulting pole in the slot. The horizontal force (FH) is converted into two forces upon impact; a force tangent Ft to the arc described by the vaulting pole at the hand grip and a force FR running directly through the pole to the slot. It would be ideal to get FR to a minimum and Ft to a maximum.

Newton's formula also states: $F_{\text{tangential}} = \frac{MV}{t}$ where M = Mass, V = Velocity, t = time, M = W/g,

W = Weight, and g = Acceleration due to gravity.

Substituting in the formula we have: $Ft = WV/gt$

Now, if we use the figures for our two men, we have:

$Ft_{160} = 160 \times 25 \div 32 \times .314 = 398$ pounds of tangential force for the 160 pound man.

$Ft_{192} = 192 \times 25 \div 32 \times .314 = 478$ pounds of tangential force for the 192 pound man.

Now, see what we have when we diagram the results.

Diagram 3 shows the forces applied in pole vaulting by two men who differ only in weight (scale 1/4 inch equals 50 pounds). The heavier man on the left weighs 192 pounds, yet his resultant force in the direction of his jump is greater than the 160 pound man, as illustrated by R₁₉₂ being longer than R₁₆₀.

The heavy athlete has the advantage. R₁₉₂, the resultant force, is greater for the heavier man.

If we compile moments of force (Force X Distance) about the planting slot, we get the following results:

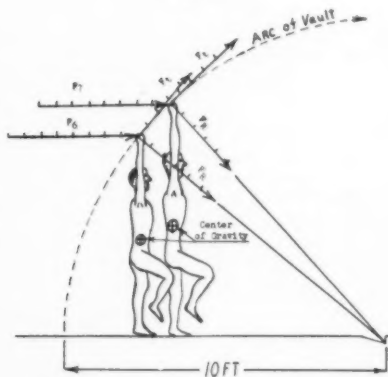
$Ft(D) - W(D) = \text{Moment of Force about Pivot Point (slot)}$

$478 \times 10 - 192 \times 7.07 = 3422 \text{ ft. pounds.}$

$398 \times 10 - 160 \times 7.07 = 2850 \text{ ft. pounds.}$

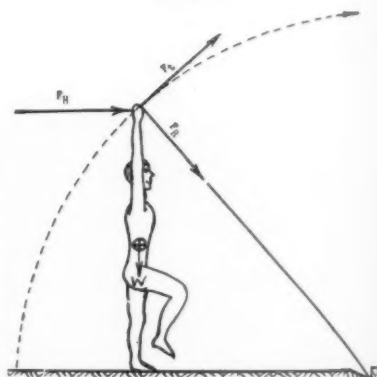
The results indicate that the larger man would produce a larger moment or rotational force about the pivot point than the lighter individual.

Diagram 1



F_s = Force applied by a short man. The grip is 6 feet from the ground. F_t = Force applied by a tall man. The grip is 7 feet from the ground. F_s = F_t.

Diagram 2



$F_t = \frac{MV}{t}$ M = Mass, V = Velocity (FT/sec)
and t = Time (sec.).



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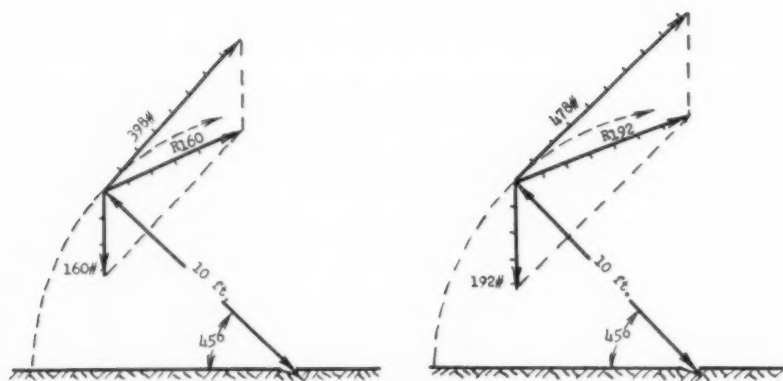


Diagram 3

The skeptic will come back again with the argument that the lighter man would be faster. This is doubtful, since the larger man could probably run faster and could handle the vaulting pole more easily due to his musculature, but aside from that, athletes who are lighter are usually smaller in stature.

Being smaller in stature, he will take off farther back and his negative moment (force in a counterclockwise direction) will be larger as shown in Diagram 4.

Diagram 4 shows moments caused by weight alone. Notice Moment M_1 for the taller man is smaller than M_2 for the shorter man even though they both have the same weight.

The weight W_1 of the taller man is equal to the weight W_2 of the shorter man. However, the shorter man has a larger moment arm D_1 (Distance from handhold to vaulting slot measured along horizontal axis) since he is taking off farther back than the taller man even though they are both holding the vaulting pole at the same spot. This creates a greater initial negative moment.

W_1 = Weight of tall man.

W_2 = Weight of short man.

Moment for tall man = $W_1 \times D_1$.

Moment for short man = $W_2 \times D_2$.

Since D_2 is greater than D_1 and $W_1 = W_2$, the moment tending to hold the vaulter from making his vault would be greater for the shorter man because M_2 is greater than M_1 .

Now, we will find out how high the vaulters should jump. We know through the law of conservation of energy that a body projected upward through the air has kinetic energy due to its motion. It gains potential energy as it gains height. The final potential energy will be equal to its initial kinetic energy.

Potential Energy = Kinetic Energy

$$Mgh = \frac{1}{2} MV^2$$

Then h or height of the vault is:

$$h = V^2/2g$$

When we substitute in this formula, we find that a vaulter who has a velocity of 25 feet per second should lift his body weight to a height of 9.78 feet.

WALTER WELSCH graduated from N.Y.U. where he captained the track team. After service in the navy, he coached track at Robert E. Lee High School in Jacksonville, winning two conference championships in track and three state championships in cross-country. At present he is working toward his doctor's degree while coaching cross-country and teaching physical education.

$$h = (25)^2 \div 2 (32) = 9.78 \text{ feet}$$

It can be seen that the speed of the vaulter is most important since this is squared. Now this height is the distance his center of gravity will be raised. The C.G. for a man has been

found to average about 57 per cent of the height of his body with his arms at his sides. With his arms above his head as in the take-off in the vault, the C.G. would be raised five inches.

The tall man again has the advantage because his C.G. will be higher since we add the height of the C.G. above the ground to the height obtained from his velocity.

A man 6 feet tall would have his C.G. 3.4 feet above the ground, while for a man 5 feet, 6 inches tall it would only be 3.14 feet. This difference which is due just to height would mean that the tall man could go approximately 3 inches higher without any extra effort.

To this total height we can add about 2 feet more for pushing off the vaulting pole, and again the tall man will generally have the longer arms and the greater lift from his arm extension.

If we add all of these factors together, it can be seen how a vaulter can get up to 15 feet. The total height of 9 feet, 8 inches, due to his running speed, plus 3.4 feet, due to his center of gravity, plus 2 feet for arm extension, gives a 15 foot pole vault.

Many factors are involved in vaulting, such as wind resistance and friction of the pole in the slot, springing force of the pole, foot spring of the vaulter, and arm strength. It is important that the vaulter remain as close to the pole as possible because any lateral movement would dissipate some of the energy needed for a maximum vault. The vaulter also gains some radial velocity when he rocks up on his foot to take off.

In conclusion, the tall, fast, heavily-built individual is the best vaulter. An individual built like Chuck Fonville (tall, strong, and with long arms), with the agility of Meadows or Sefton who can propel themselves 33 inches above their upper-hand grip would be ideal. Then by adding to these qualities the ability of Warmerdam to hold the pole at 13 feet, 3 inches, a 17 foot vault is not out of the question.

Speeds of 30 feet per second at the point of impact are also not impossible. This is not average speed on the approach, but the speed at the moment the vaulter plants his pole. This speed would allow an individual to hold his vaulting pole near 14 feet. Warmerdam held his pole at 13 feet, 3 inches. Add to this the 33 inch lift extension of Sefton or Meadows above the upper-hand grip, and it can be seen that it makes for a 16 foot vault.

(Continued on page 67)

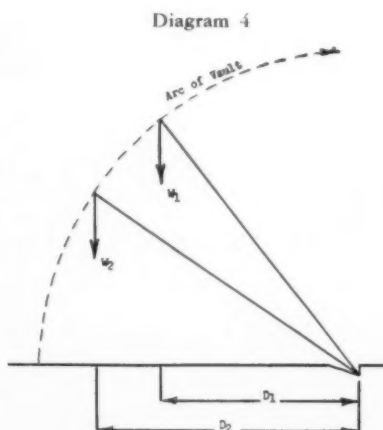
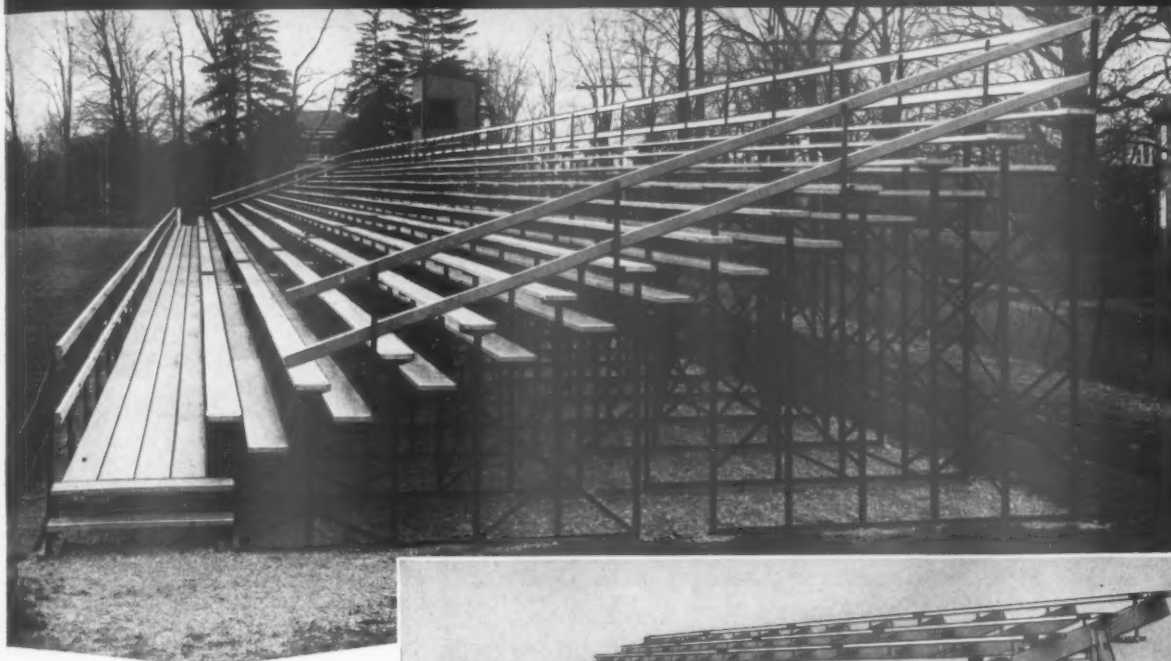


Diagram 4

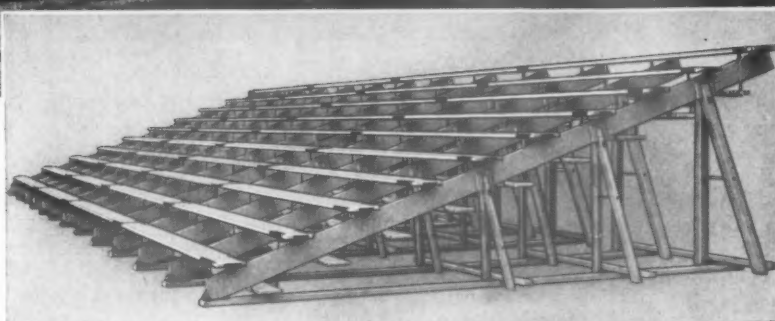
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TYPICAL SEATING PLANS			
Plan	Length	Rows	Capacity
1-S	90' 0"	8	520
2-S	138' 0"	10	1000
3-S	198' 0"	10	1430
4-S	234' 0"	12	2028



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2-W	135' 0"	10	990
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4-W	180' 0"	15	1980

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Name..... Title.....

Organization.....

City..... County..... State.....



Track Box

By EDWARD J. RYAN

Assistant Supervisor of

Athletic Activities,

Public Schools,

Portland, Oregon.

A GREAT deal has been written about track and field in regard to meet organization, duties of officials, track construction, and equipment. However, little mention has been made of how and where to store the multitude of articles that are needed to conduct a track meet efficiently. This article is not concerned with the storage of the following large semi-permanent equipment which is furnished by the host school: Announcing system, benches for field events, broom, crossbars, forked stick for pole vault, high jump measuring stick, high jump standards, hurdles, judge of finish stands, pole vault standards, rakes, roller, scales, score tables, shot put toe boards, and step ladder.

Finding storage space for the many smaller supplies that are used to conduct track meets can present quite a problem. We believe we have solved this problem to a degree by having a filing cabinet type box made which can be used for this purpose.

This box is designed so that every piece of equipment used has a specific place. Each drawer is a different height. One drawer is narrow and holds two starting guns and blank cartridges. Another drawer is rather wide and contains all of the forms that are needed. In addition to the forms that are used for all meets, there are a few copies of the mimeographed material of heats and lanes that have been determined by the track committee before each meet. Programs are not kept in this box.

The box contains the following:

Score Sheets-Field Events-10 each

Pole Vault	Javelin
High Jump	Discus
Shot Put	Broad Jump
Instructions for Officials	

(How to judge and how to decide ties)

Field Events-5 each

Finish Judges-10 each

Timers-10 each

Announcers-2 each

Scorers-2 each

Timers Cards-3" x 3"

Clerk of Course-50

Judge of Finish-50

Master Score Sheet-20

Scratch Paper

Manila Folders-8

Time Schedule and Meet Rules

Awards-Ribbons

Batons-8

Blank Cartridges-12 boxes

Clip Boards-10

First Aid Kit

Finish Yarn-3 spools

Megaphones-4

Official Badges-200

Pins-Common and Safety

Rule Books-2

Scissors

Starting Guns-2

Stickers for Shot and Discus

Stop Watches-8

Tape-Steel-4 spools-50 ft.

2 spools-100 ft.

The drawer that holds the stop

watches is rather unique. Inside this drawer is a wooden block that has a recess for each watch. This recess is covered with soft leather. There is also a leather lined lid for this drawer. The lid fits very snugly within the drawer, thus eliminating any possible movement of the watches while in transit.

Opposite the drawers are slots to hold the many clip boards that are used for a track meet.

Pencils, tape measures, and batons all have their proper place. Megaphones and a field walkie-talkie are stored in the center compartment. Finish yarn is wound on old porcelain electrical conduct plugs and stored in the miscellaneous drawer.

The top of the box is larger than the bottom, so that when the box is open the top will act as a cover against the rain. On the inside of the door is a cork bulletin board. This bulletin board has proved a very helpful place for mounting the sign out sheet for equipment that is used by the various officials. The numbering of all tapes, watches, clipboards, and other large articles within the box has been a big help in seeing that these articles are returned at the end of the meet.

Dimensions of the box are such that it will fit in the trunk of most automobiles.

Articles within the box are checked before and after each season. An index for this purpose is kept on file.

For faster attachment and adjustment...



**GREAT NEW
WILSON TENITE HELMETS**

For peak protection against shock and head injury, Wilson one-piece molded Tenite helmets feature these outstanding composite paddings: *Ensolite, Latex Foam Rubber, Vinyl Foam.* With web suspensions, military chin-straps. Popular colors. Model shown above: the TP.

Specify the new
Snap-On
Wilson
Grid-Gard
Plastic Face Mask

**WILSON GRID-GARD GIVES
FULL FACE PROTECTION WITH FULL VISIBILITY!**

- 4-snap mounting makes it easy to attach—easy to remove.
- 4 adjustable leather straps insure proper fit *in seconds*.
- Players can put on or take off mask-equipped helmets faster, more easily.
- Modern Wilson construction gives full visibility.
- Entire mask is shatterproof, transparent Lucite.
- $\frac{3}{8}$ " heavy-duty padding provides maximum protection along jaws.
- Ample mouth opening allows easy breathing, clear signal calling.
- Fits all Wilson helmets.

ANOTHER PROTECTIVE ADVANCE FROM WILSON

Plastic masks have already proved themselves. And this new Wilson Grid-Gard represents the finest plastic face mask yet designed. Get in touch with your Wilson salesman now . . . order your ball club a supply of Grid-Gards before spring practice.

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There Never Was a

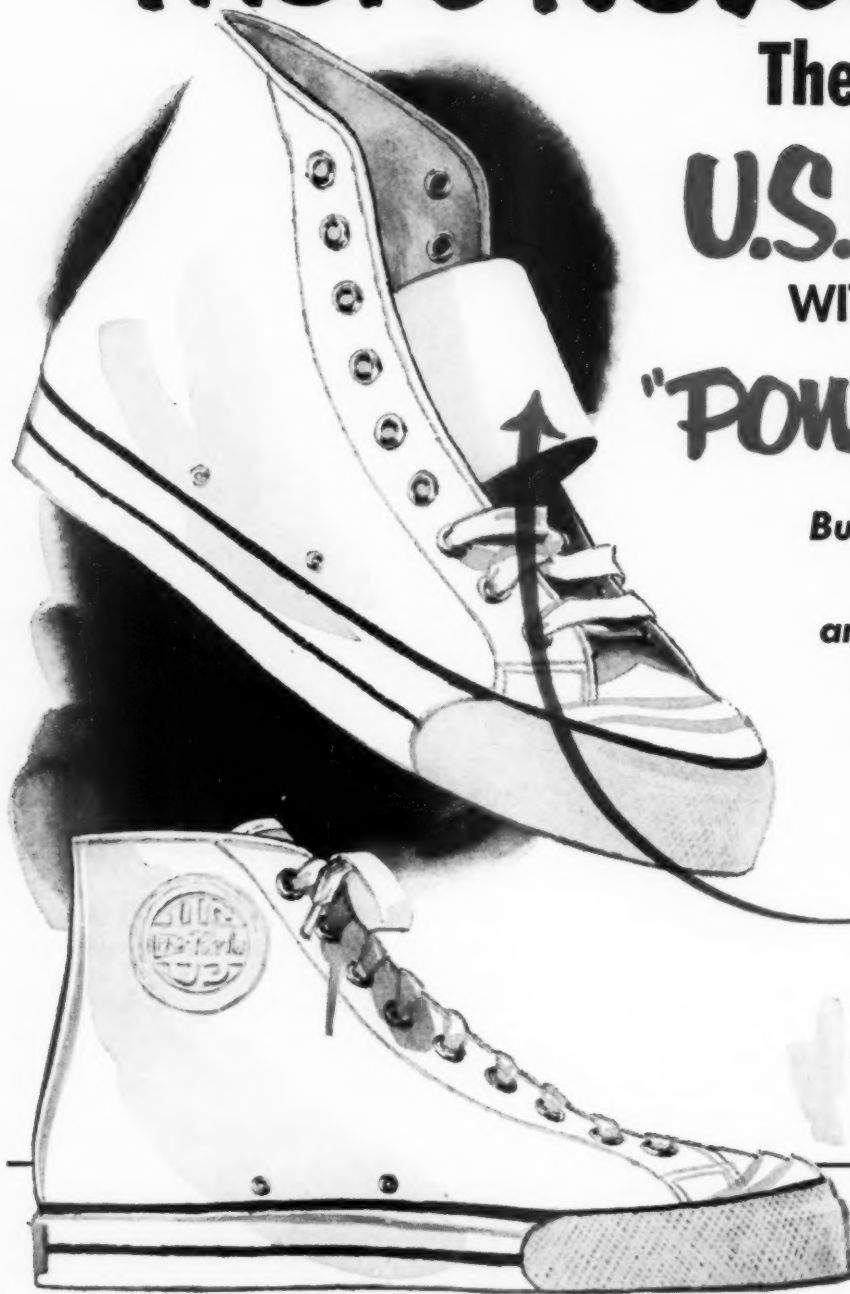
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stops slipping,
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UNITED STATES

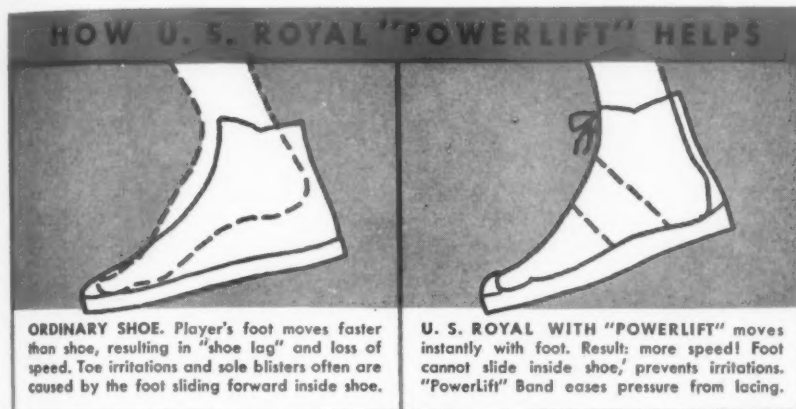
as a Shoe Like This!

Here, for the first time, is a basketball shoe that actually lets the player use all of his native speed and maneuverability because this is the first shoe that hugs the sole of the foot, all the time, with every motion!

The reason is the new, patented "PowerLift", an elastic harness vulcanized into the sole that keeps the arch always in contact with every curve of the foot.

For the first time, foot and shoe move, and act, as one. The result is faster starts, less loss of power, quicker physical reaction to the player's reflexes.

The U. S. Royal has all of the design features that have made the U. S. Sureshot one of the great names in sport. Now, with patented "PowerLift", the U. S. Royal has no equal for top-flight play!



U. S. SURESHOT

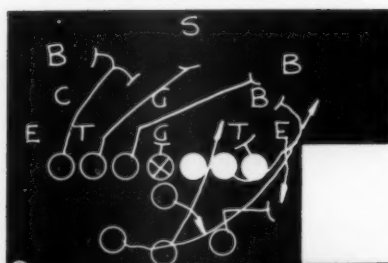
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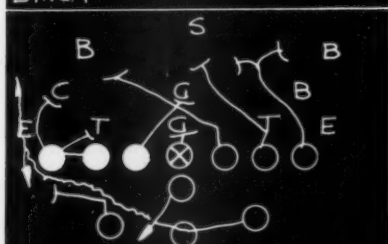
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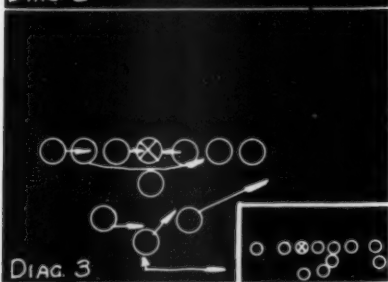
The Shoes of Champions.



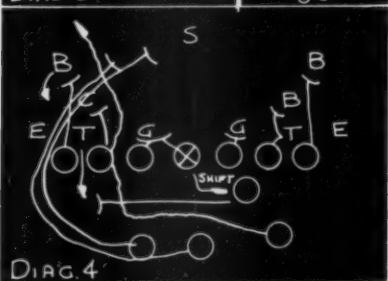
DIAG. 1



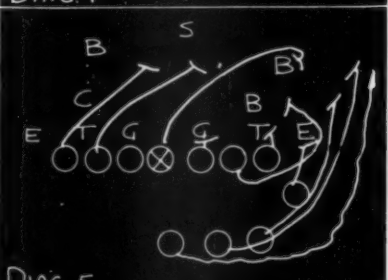
DIAG. 2



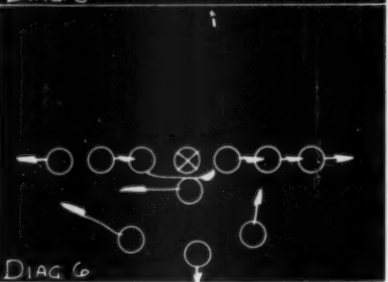
DIAG. 3



DIAG. 4



DIAG. 5



DIAG. 6

Vary Your Offense

By **GEORGE A. KATCHMER**

Football Coach, Millersville, Pennsylvania, State Teachers College

WITHIN the last five years the growth of football at the high school level has been amazing. Proportionately, considering the finances, material, personnel, time, and other factors which are available, it can be classed on a parallel with college football. No longer may the high school coach put in his hour or two hours of practice and smugly or fearfully await the weekend tussle. Today he must conduct his practice according to a definite schedule. Everything is planned almost to a science. Even the small high school coach must keep up on game literature. More and more the clinic is demanding attendance for coaches from all levels. Football is a game of wits, material being equal, and this holds true all the way up the echelon. Today the small school coach is just as much in evidence as far as scouting games is concerned as is his more pressured colleague.

Pride, ego, ambition, and pressure have taken the euphemism out of coaching. The small high school coach is determined to win, pressure or no pressure. His growth has been as great as that experienced by the game. This growth of the coach is highly significant because it has improved the caliber of play tremendously. The colleges have found that the joint schools, the township schools, and the plain small town high schools are turning out boys who are well rounded in football fundamentals and who are capable of competing on a big-time scale. College coaches no longer base their selections purely on the over-publicized large high school stars. They are relying more and more on the recommendation of the coaches who are well grounded in their particular jobs.

The small high school coach is no longer a member of the faculty who has been told to coach football as an added duty without any extra compensation. Ninety per cent of the time this faculty member was wholly unprepared to coach such a demand-

ing sport. The trend has changed. The present-day coach has received concessions which were unheard of 10 years ago. At the present time even the poorest district, in most instances, has provided an assistant who generally handles a junior varsity team or a junior high school squad. A feeder line has been established. Occasionally, the small school coach will imitate his colleague who is coaching at a higher level and shoot movies of at least one of his games. Equipment has become equalized among the schools. It is true that budgets differ, but the sacrifices made are greater in order to overcome this differential.

The caliber of play tends to imitate. College and professional games are being imitated more and more by high schools. Professional literature, movies, and clinics have imparted knowledge and imbued a spirit among coaches which has changed high school football to proportions that have captured the public mind. It is an advanced game of football. The style of play used today is not a straight single or double wing which calls for the basic buck, the end run, the spinner, reverse, or pass. Likewise, the T formation has been revolutionized. The days of the 6-2-2-1 defense and 12 to 20 basic plays are gone. In its place are found plays that have trailers or options which can change one basic play into 10 separate plays. One game may find as many as nine different defensive patterns. In other words, the development which is being experienced at this time simply states that in order to win a coach must vary his football. This holds true for high school as well as college football.

An offense must be varied to meet the four-man line with its slanting and charging secondary. The defensive options of the five-man line are too numerous to describe but cognizance of their strength must be taken to show the variations to which an offense must be adapted. Even the

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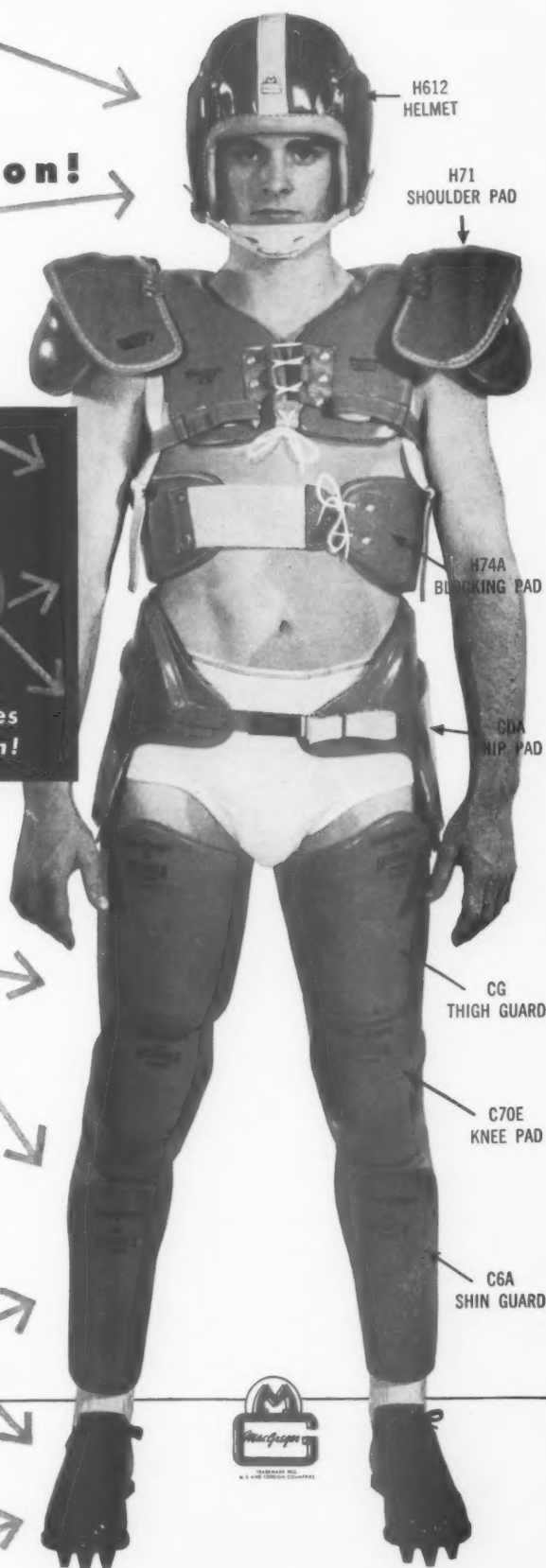
Now in its third season, Absorblo has won enthusiastic approval of players and coaches alike. Players—because it is light and enables them to play more aggressively and confidently. Coaches—because it keeps their teams going full speed with a minimum of time out for injuries.

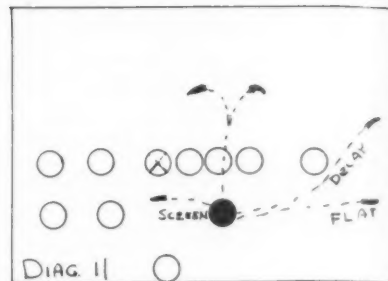
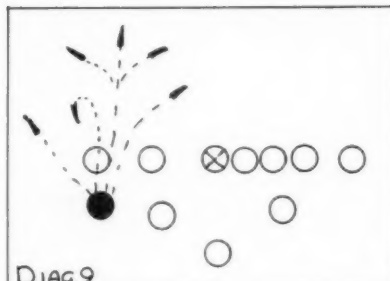
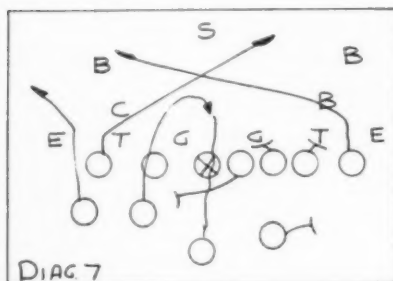
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six-man line has been changed, thus increasing the pressure on the offense. The seven, eight, and even nine-man lines are now more the rule than the exception.

At the present time the offense must meet the challenge of the changing defense. A team may be coached to meet a changing defense without too much confusion. The T, single wing, double wing, T quarterback flanker, and other formations can be adapted with very little material change in blocking assignments. There is a realization among the boys that in order to insure a winning team they must adapt themselves intelligently to the demands of present-day football.

By employing a few tricks of the game, plays can be doubled without taxing the learning process of the boys involved. For example, any play which is run to the right side can also be run to the left side. It is not necessary for the left side or the right side of the line to learn any new blocking assignments. By changing the right side of the line to the left side the same play can be called and all blocking remains the same. The backs need not change, because with the modern system of numbering players and hole positions, it is not difficult for the backs to grasp the play. Most quarterbacks will usually name the play such as 39 pitch-out, 34 spinner, 43 quick-opener, etc. This method helps the boys recall the play.

Bob Higgins of Penn State used this system of line changing to great advantage the year his team tied

Southern Methodist in the Cotton Bowl. From the television screen it also looked as if U.C.L.A. used the same system in its Rose Bowl game against Michigan State (Diagrams 14 and 15).

Counter plays and reverses can keep the defense from anticipating and guessing.

Diagrams 1 and 2 show how a simple T play can be run to both sides.

FOLLOWING graduation from Lebanon Valley, George Katchmer coached at Cherrytree, Pennsylvania, High School. He served in the army for five years and then returned to Cherrytree. In 1948 he went to Newport, Pennsylvania, High School where he enjoyed outstanding success, winning 20 out of 21 games. He moved to his present location last summer. Katchmer is the author of the book, "Finance Your Athletic Program."

The T and its variations provide a good basic offensive foundation. The boys can shift from the T into the single wing with a balanced or unbalanced line (Diagram 3). This shift will add power to the offense and give it the variation desired with its spinners and reverses.

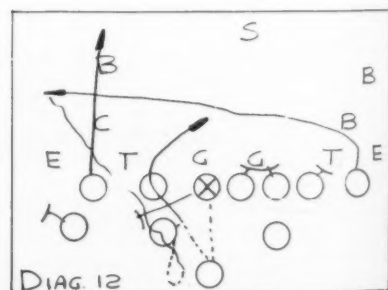
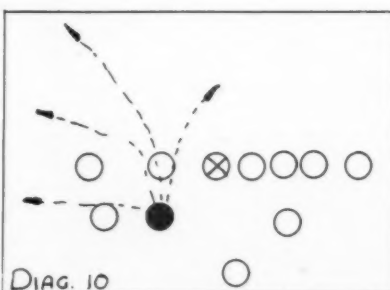
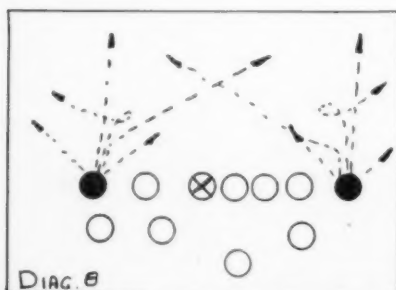
The T, with the quarterback as a flanker (Diagrams 4 and 5), can provide power, deception, and four po-

tential ball-carriers. It gives option plays as well as trailers for possible laterals and is adapted very well for trap plays.

A quick switch into the A formation (Diagrams 6 and 7) will tend to confuse the defense and open up a passing game which could completely demoralize the opponent.

The offense should be varied throughout the game. Those T quick-openers and pitch-outs should be run and the single wing should be used to power the defense. The defense should be opened up with the A formation and trapped to death with the T quarterback flanker. Defense has not as yet caught up to offensive play; it should be kept guessing all the time. Time and drill are necessary so that defensive players will be able to react to quick changes in offensive patterns. The addition of some spread plays and single wing man-in-motion plays will have a confusing effect upon the defense.

Let us study the varying offensive patterns more in detail. When operating from the basic T formation, the down, strength of the defense, type of defense being used, and the score will determine the offense to be used. Suppose quick-openers are being stopped and pitch-outs plus option play is meeting the same stubborn defense. There is but one alternative — passing, but not from the T formation. The defensive line has the T offense quite well stymied. The answer would call for a switch into the A formation which can give 22 simple passing patterns that can be adapted

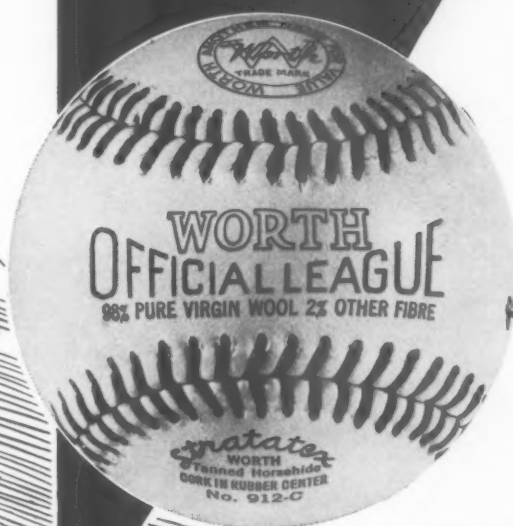




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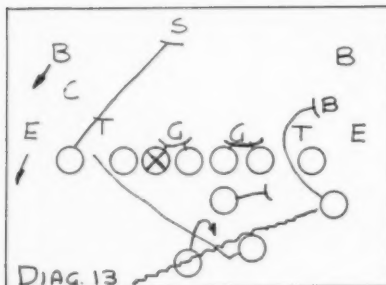


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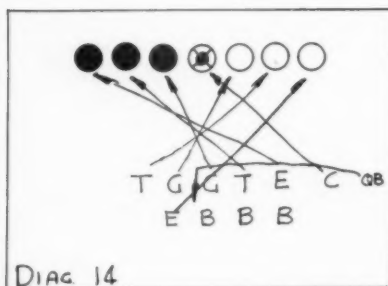
The Lannom Manufacturing Co.
TULLAHOMA, TENN. GRINNELL, IOWA



to the mental and physical level of any high school boy. These passing patterns are shown in Diagrams 8, 9, 10, and 11.

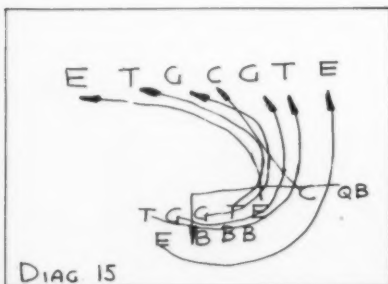
From this offense the passer has plenty of time to pass since he may be from seven to ten yards deep. He has blockers on both sides to form his passer's pocket. The passes can be of the deep, short, flat, delayed or screen type.

To keep the defense honest the A formation offers a variety of running plays such as spinners, quick bucks, reverses, and the buck lateral. Diagram 12 shows the running play pos-



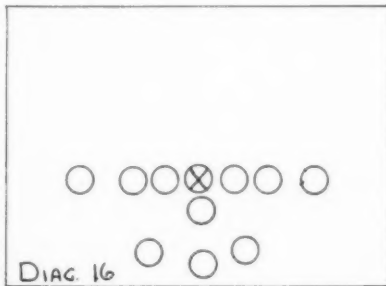
sibilities.

The single wing with a balanced or unbalanced line is still a potent offensive weapon in football. An opposing team that has a light line, or weak guard or tackle, can be double-teamed to death. Poor ends can be steam-rolled by wide end sweeps and cutbacks. The use of flankers and a man-in-motion has added new deception to the spinners, reverses, and trap plays (Diagram 13). It is simple to shift into



the single wing, and this shift definitely calls for a defense that must halt power. The question is whether or not high school boys can react fast enough defensively to the change in offense. When we consider the success Michigan State has enjoyed with its multiple offense we more or less have the answer. If college boys have difficulty adapting to the offensive change, then certainly high school boys will have much more difficulty. Usually, the period of indecision is long enough to give the offense the advantage which should result in a nice gain on a play which is executed quickly.

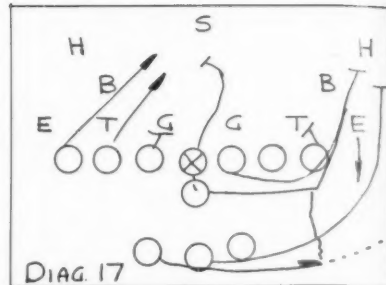
Addition of buck lateral plays will keep the defense cautious since the outside will have to be protected. Thus, the defense will be spread and kept guessing. The defensive players will have to be on their toes constantly. Quick no-signal openers from the T, before any shift, will tend to pin the defense down at all times so that when the offense shifts the defense will be caught off time and step. When the defense chooses to



remain in one pattern, such as a 6-2-2-1, then some experimentation in the first quarter will tell what offense should be used. As it is in basketball so it is in football, the offense must use a special attack and probe for the defensive weakness. Each defense has its weakness. The offense that will gain the most from that weakness should be used.

The T has been expanded to such proportions in the past few years, that few, if any, coaches are unaware of the changes. There is the tight or close T, (Diagram 16), split T, (Diagram 17), tandem T or winged T, (Diagram 18), the quarterback in motion or flanker T, (Diagrams 4 and 5), and the double wing T with the wingbacks in motion (Diagram 19).

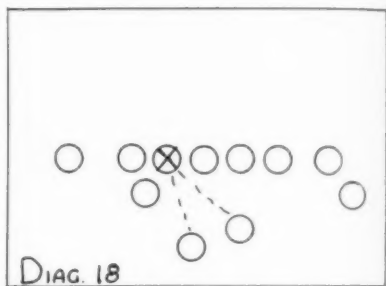
The split T offers the option play and a dangerous passing game (Diagram 17). A line that is split wide tends to spread the defense and open it up to ground-gaining quick-open-



ers. A quarterback sliding parallel to the line, who has the option of keeping the ball or pitching it out, puts extra pressure and caution on the defense. At the same time the defensive backfield is kept honest with the passing threat.

We do not recommend that every type of offense mentioned here be included but the styles that will fit in with the material should be selected. Three well-chosen offenses with a selected choice of plays that have basic similarities will fit in with any group of boys.

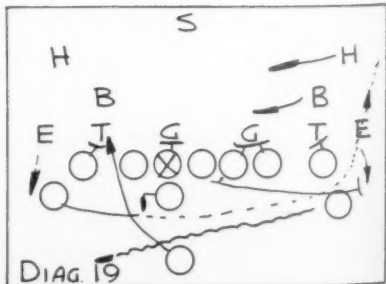
In 1952 we experimented with this



style of offense. Having lost 22 boys out of a squad of 26, (school enrollment 242), and with only two lettermen returning, we used the T as our basic formation. From it the team would shift into the quarterback flanker or the single wing. Some wide spread pass patterns were also included.

This offensive attack netted Newport Joint High School its only championship in school history, and the

(Continued on page 59)



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SAM BOYD	Baylor
JACK RUSSELL	Baylor

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Integrating the Conventional and Split T Attacks

By **WARREN K. GIESE**

Assistant Football Coach, University of Maryland

COACHES everywhere have followed with interest the separate development of the so-called Shaughnessy or Bear T during the early 1940's, in contrast to the late 1940 and early 1950 development of Don Faurot's split T formation. The trend in recent years, especially this last season, has been to attempt an amalgamation of these two basic T formations rather than to use one or the other in its pure and simple form.

The integration of these two attacks has been caused and probably even necessitated by the improved defensive alignments and maneuvers used in recent years. Coaches have found that what they consider the defensive answer to the split T formation, may well prove a poorly conceived alignment and a weak defense when they are confronted with certain segments of the conventional T. Let us assume, then, a team with more than one avenue of attack will prove a more difficult defensive problem to its opponents. And with a diversified offense as our goal, let us examine the problems involved in developing one.

First, we believe it is much easier to integrate certain segments of the conventional T into the offense of a basic split T team, rather than to do the opposite and attempt to integrate the basic split T into a conventional T attack. The reasons are numerous; however, the primary one is based upon the fundamental offensive movement of the split T linemen which is straight ahead. Without near perfection in this fundamental the offense loses much of its potency, and the success of split T plays then becomes predicated upon defensive weakness rather than upon offensive ability. The great amount of pulling, leading, and trapping used in most conventional T attacks relegates this idea of linemen hitting straight ahead to a secondary role.

When considering the development of an integrated attack, we must start with a basic theory of offense. For instance, some coaches believe in ball control above all else. Their objective is the consistent grinding out of three

or four yards a play, first down after first down. Bud Wilkinson's Oklahoma team, and Andy Gustafson's Miami aggregation are two excellent examples of this theory in action. Other coaches concentrate their efforts on developing a passing attack and thereby relegate their running offense to a secondary role. Chuck Taylor of Stanford, and Wallace Butts of Georgia have fielded teams featuring great passing combinations and apparently conformed to this theory. There are many other ideas of offense but let it suffice to say, that when expanding an attack it is most important that all additions conform to a basic theory of offense.

A good example of a popular offensive addition open to question was a rival team's use of the outside-belly play during the past two seasons. It was a real crowd-pleaser. The coach said his boys liked to use it, and he followed along by seemingly remembering only the touchdowns it helped his team score. The cold, hard facts were revealed in the final statistics. The play had either lost ground, or the ball had been fumbled 50 per cent of the time. It gained three yards or less on 50 per cent of the remaining plays. The outside-belly plays' percentage of success, i.e., gained four yards or more per attempt, was less than 25 per cent. The inconsistency reflected by these statistics left its inclusion in the offense open to considerable question. Certainly it did not conform to the coach's basic theory of ball control upon which his team's offense was supposedly built.

Second, we must keep in mind the precepts upon which the basic offense is founded. Only by checking each tentative offensive addition to make sure it conforms to the underlying ideas of the bread-and-butter offense, can a coach prevent his team's attack from becoming a hodge-podge of non-related plays. For example, successful use of the split T is built upon the utilization of line splits to assist the offensive linemen in the performance of their

(Continued on page 55)

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Don't Let Them Fail!

By DOUGLAS A. FESSENDEN

Director of Physical Education, San Francisco State College

TACKLING is extremely hard to teach. While it is probably the simplest important fundamental skill a football player must acquire in order to reach acceptable all-round proficiency as a player, piloting the way to acquisition of this skill has probably broken more football coaches than any other single teaching activity. Every coach knows that unless the job is well done, and the results are satisfactory, he cannot hope for a good season, but exactly how to go about it for any particular squad, or for any particular individual may easily evade him.

Motivation is seldom, if ever, a problem. The majority of coaches proceed on the assumption that if the boy did not want to make the team he would not be out for it, but at the same time many are baffled by the degree of disparity in what is generally accepted as the native capacity of individuals. One fast, well-co-ordinated, sturdily built boy never seems to be able to obtain proficiency as a defensive player and in bewildering contradiction to preconceived ideas of what it takes, a scrawny, myopic, underfed looking lad learns to tackle like a fiend. To further complicate the situation a boy who hits the dummy with the consummate skill and enthusiasm of a professional, when placed in a game, is described by the coach as *not being able to tackle his grandmother*.

Unfortunately, insofar as the teaching of tackling is concerned, the coach's problem does not permit much leeway. He is confronted with the necessity of selecting and preparing a team. A sort of automatic vertical classification takes place in which the boy on the lower end of the scale is likely to lose out. A fixed hierarchy of motor capacity manifests itself in the selective process, and the boy who as a result of some environmental coincidence has experienced the satisfaction of successful physical combat is most likely to get the call.

Organizing the teaching of tackling can be, and should be, very simple. It should be perfectly obvious that tackling is not a skill comparable in kind to driving a golf ball, executing a half gainer in diving or the accomplish-

DOUGLAS FESSENDEN competed at Illinois and then coached football and track at San Antonio and Brownsville, Texas until 1930 when he went to Fenger High School in Chicago. In 1934 he went to the University of Montana as athletic director and football coach. During the war he served as a physical training officer in the air force and in 1951 received his doctor's degree at Columbia. Fessenden spent two years at Mansfield, Ohio as director of athletics before accepting his present position.

ment of a gymnastic stunt. Rather, it is an activity in which the desire to excel, and the conviction on the part of the learner in his ability to perform, far outweighs the skill component. Any methodology providing a negative approach is likely to fail.

In the beginning, the football coach should move slowly. It is of paramount importance that nothing transpire in the early stages to affect adversely the boy's positive attitude or desire, or to create so much as a shadow of a doubt in his mind regarding his capacity to become a good tackler. In fact, this should be the key idea throughout. The organization of the work should be such that it progressively promotes success. Therefore, it is essential that premature demands be avoided. A player learns to tackle as a result of success, not through failure. In other words, a coach who, early in the season, pits an unskilled boy against an experienced veteran in an open field tackling drill may build such a block

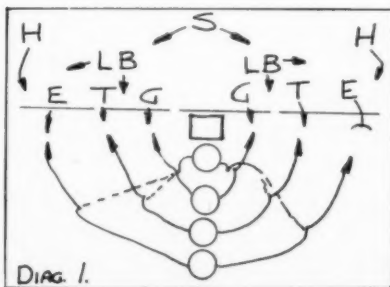
in the path of the boy's ultimate success that years may be needed to remove it.

Early thought should be given to available teaching aids. Motion pictures and film strips can be used to excellent advantage. Posters, observation of demonstration by experts, pre-season all-star games, blackboard lectures, reading material, and picture illustrations should be utilized in preparing the squad for the work which must come later.

Use of the blackboard can be very important in establishing a focus. The dynamics of the group is of vital importance in any learning situation and is doubly so in defensive football. It is a highly co-operative activity wherein one man's success depends to a large extent upon the performance of the teammate who is beside him, or the player behind him. Success is based upon an understanding of individual territorial responsibility. The battlefield provides a challenging parallel to the point stated. Let us take as a focal point the idea that the football field is a battleground whereon individuals representing tactical units are strategically stationed. Each defensive unit has the job of accomplishing certain planned maneuvers and defending specified portions of the field against encroachment by the enemy. Thus, instead of one man thinking of himself as an individual he becomes a part of a dynamic whole, a part of an overall meaningful pattern.

Movement analysis will contribute materially to the rapidity with which the squad member acquires skill in tackling. Although authorities differ sharply on the extent to which any given skill should be broken into its component parts for teaching, all agree that in order to learn rapidly, the key movements of a skill must be sufficiently simplified to permit clear recognition of the pattern. However, it should be remembered that because of the highly involved situation that actually exists during the playing of a football game, no two tackles are accomplished under exactly the same circumstances, or even from the same angle. Consequently, the skill, if au-

(Continued on page 65)



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The Urbana Shift from Classrooms to Basketball Theater

Illustration above shows the view from the east balcony. The electric folding door is partially closed. Notice the door track paralleling the railing. The lower illustration to the left shows the same view with the balcony bleachers in use. The illustration below shows the bleachers opened on the main floor and balcony.



THE Coliseum was built in Rome 1869 years ago by Vespasian, a man who was more interested in the number of spectators that could be accommodated than in the maximum number of athletes who would be able to participate.

Vespasian's plan, which was row upon row of bleacher seats for stadia and gymnasium construction, went unchanged for 1845 years. In the late 1920's folding bleacher seats appeared on the market, and banks of nested stands on each side of the floor added activity space for athletes in the gymnasium classes that were just then beginning to become overcrowded.

The 1930's saw a school building program as a result of W.P.A. projects. Almost all school gymnasiums contained balconies; however, the upper tier of seats was still constructed on the same costly, inefficient stairway plan, used first by Vespasian.

By O. R. BARKDOLL
*Educational Consultant,
Downers Grove, Illinois*

During the middle 1930's a Pennsylvania newspaper ran an article proposing a change in gymnasium construction. The article suggested that instead of an expensive tier of concrete steps, useful only for seating spectators, a vertical wall the height of the balcony be erected. The next suggestion was that an inexpensive, horizontal slab, which is the

least costly method of forming concrete, be laid. The article further suggested the use of folding bleachers on this horizontal shelf. These bleachers could be opened for school functions and nested during school time for gymnasium classes, thus making 60 per cent additional floor space available for practice periods.

As has been the case with new ideas down through history, this one concerning the new type gymnasium was immediately ridiculed. Subsequently, many articles on this plan were published in the educational magazines.

Following World War II, when building costs skyrocketed, Nyssa, Oregon, High School tried out the plan of the double-decker balcony shelf, on one end only in its new gymnasium. In 1950, Hinsdale, Illinois, High School used this plan on both sides of its basketball court. Kankakee, Illinois, went a step far-

(Continued on page 62)

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	On Base Average		Power Hitting		Catcher-Running	
Offense	Hits + Bases on Balls + Hit Batsmen		+	3 (Total Bases Minus Hits)		Runs
	At Bat + Bases on Balls + Hit Batsmen			4 At Bats		
Minus Defense	Opps. Bunting Average		Pitching Control		Clutch Pitching	
	Hits		Bases on Balls + Hit Batsmen		Earned Runs	
	At Bats		At Bats + Bases on Balls + Hit Batsmen		Hits + Bases on Balls + Hit Batsmen	
			Strikeouts			
	Strikeouts					
	8 (At Bats + Bases on Balls + Hit Batsmen)		Minus Fielding		Game	

Integrating Baseball's New Formula

IN the March issue we gave a resumé of baseball's new formula which was developed by Branch Rickey, general manager of the Pittsburgh Pirates. The formula interprets offensive and defensive strengths through statistics, and reveals correlations between these factors for team success. When studied intelligently it is a success formula for winning more baseball games.

As a follow-up to our previous article, we would like to interpret the possibilities of the formula in terms of use at the secondary school level.

The concrete factors involved in offense and defense are assembled in this formula. For years coaches have floundered in the sea of hearsay on accepted baseball beliefs. They have listened to baseball talk and assimilated baseball knowledge based on circumstantial evidence. Oftentimes, this knowledge, while applicable at the major league level, was ineffectual at the secondary school level. Percentages favoring or disfavoring success vary according to the caliber or ability classification of play. The factors in the equation can be applied to all ability classifications, providing they are interpreted and confined within one definite classification at any one time.

Mr. Rickey's formula lends factual strength to existing beliefs in the form of statistics. It can also discredit existing beliefs. The formula puts known facts into figures, and vice versa, since the facts are obtained from the figures or season's statistics. Thus, its value becomes evident to the high school coach. By accumulating statistics from the previous season, the coach can transfer these figures to the formula, and emerge with concrete evidence regarding successes and failures, or strengths and weaknesses.

This new formula can be a wonderful tool of analysis for the secondary school coach. It provides him food for thought, and is a concrete starting point. Facts that can be interpreted on the high school level are represented, and the factors that make up

the game into a position for analysis are broken down. In this way the parts can be analyzed and, if necessary, they can be replaced. They can be adjusted through the training or the substitution of players.

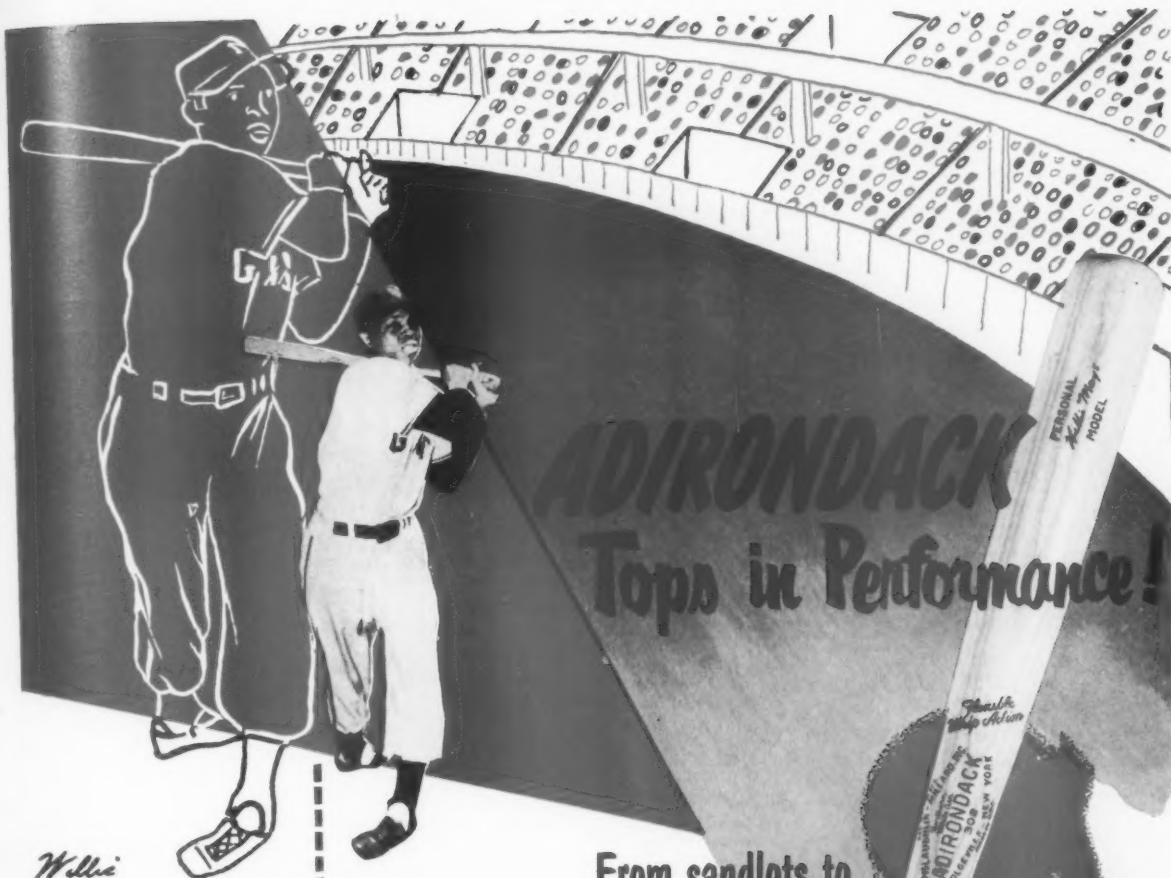
The formula may be used to detect flaws in baseball thinking. Baseball has been an exceedingly traditional game. It has remained stagnant in its thinking. Anything new in baseball is regarded with suspicion as an innovation to be feared. Major league baseball players and executives established this tradition by adhering to a standard of strategy and rules of thought that have been handed down to them by their predecessors. Deviation from these rules is considered to be sacrilegious. This equation dares to open up mens' minds to factual baseball against traditional belief. Coaches will have to believe in it in order to implement their own team's figures into facts.

However, we believe that the equation, and all its ingredients, is not as revealing to top baseball men as our first article indicates. During the winter months some of the big league managers spend considerable time studying the statistical records in considerable detail. While they may not have the mathematical minds necessary to formulate and equate in a formal way; nevertheless, they do put to practical use on the field the facts obtained from their studies.

For the very first time the base on balls is actually evaluated as an offensive weapon. In major league circles it is often regarded as a threat. In high school baseball it is a definite offensive weapon that many coaches believe in using for the following reasons: 1. Because of the poor and inconsistent caliber of hitting in high school baseball. 2. Due to the inconsistent pitching so often encountered. 3. Because of the high percentage of successful steals of second base, which make the walk almost the equivalent of a two base hit when the bases are not occupied. 4. Due to the fact that very few double plays are made in high school, the walk is not snuffed out easily by this media, but a good solid man remains on base. 5. The psychological factors against the defense subjects the players to many pressures which they find difficult to handle.

By JAMES SMILGOFF
Baseball Coach,
Taft High School, Chicago, Illinois

(Continued on page 61)



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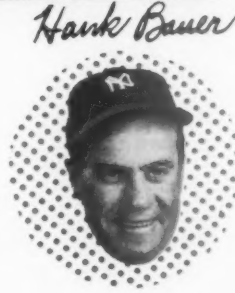
Gil Hodges



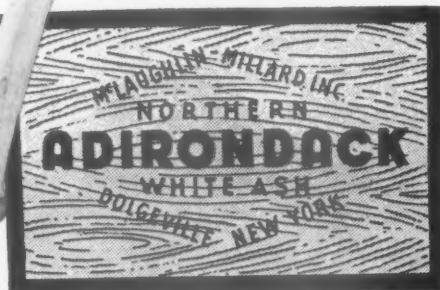
Al Dark

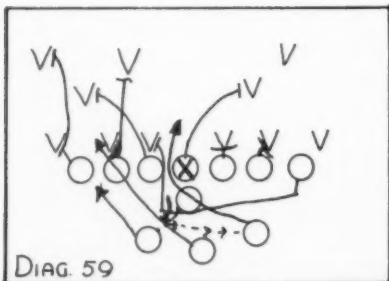


Vic Wertz



Hank Bauer

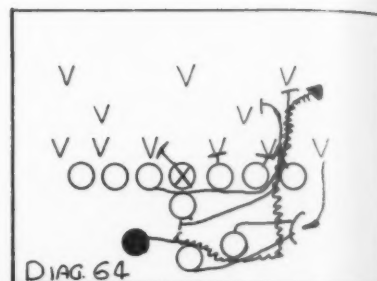




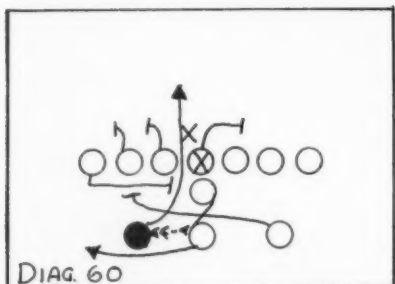
Continued From the March Issue

back, and instead tosses to the left halfback who comes up behind the trap block.

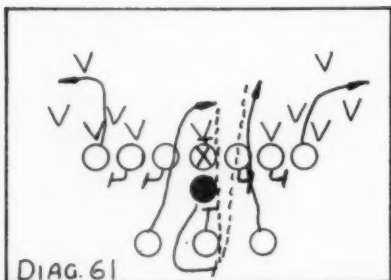
The play shown in Diagram 61 is



High School Football Offense



In the play shown in Diagram 59 the quarterback again fakes to the fullback and pitches back to the right halfback who has remained in his original position. The right half dives



up the middle behind the right end's trap block on the defensive guard.

The quarterback spins back, Diagram 60, fakes the pitch to the full-

an automatic and is called against a 5-4 defense. Both halfbacks are sent through the line to receive the pass.

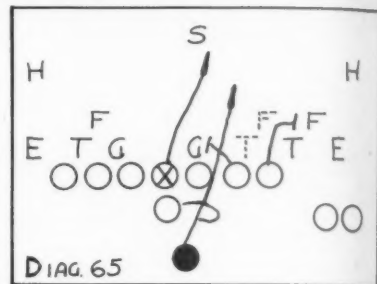
The end around play, shown in Diagram 62, is run by an Arkansas coach after the fullback counter. The quarterback fakes to the right halfback and then to the fullback before giving the ball to the end.

In the play shown in Diagram 63 the quarterback fakes a fast pitch-out to the fullback going wide, and hands back to the left half moving over the trapped guard.

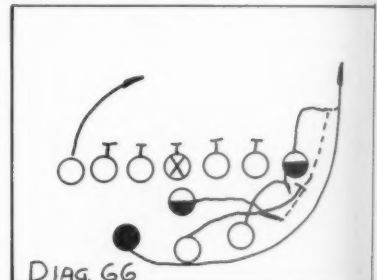
Diagram 64 shows the old favorite single wing power play run from the T formation. The right halfback takes a step forward so that he will be shoulder to shoulder with the fullback for the block on the end. The quarterback pitches back immediately to the left halfback.

A Michigan coach further spreads the defensive line by setting two backs out wide as shown in Diagram 65. The play is a fast dive by the fullback.

An Iowa coach used the forward lateral shown in Diagram 66. The end who was big moved only a few steps across the line, and on catching the ball, immediately pushed the lateral to the sweeping left halfback. This same play was also received from New York state.

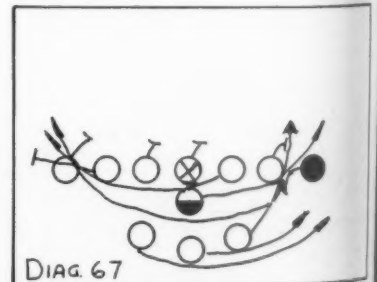
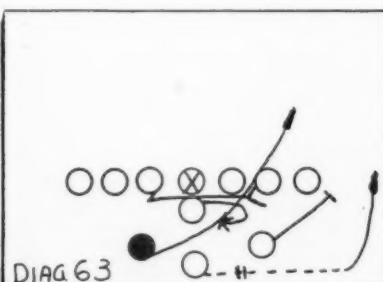
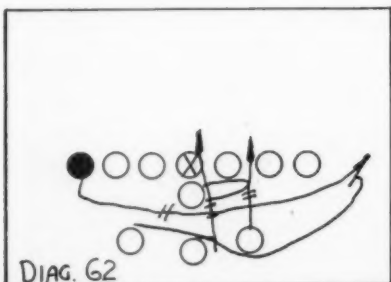


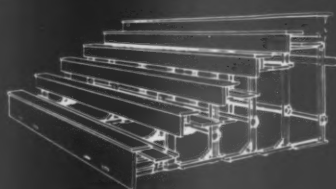
The play illustrated in Diagram 67 is an end around, run off the split T option. The quarterback moves down the line, options the defensive end, and then hands off to the right end



coming around.

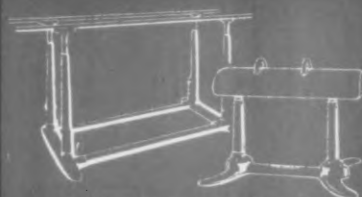
Diagram 68 finds the right halfback flanked. The play is a fake cross-buck with the hand-off going





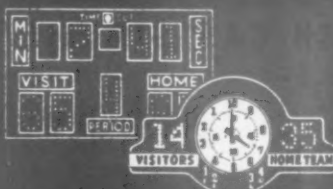
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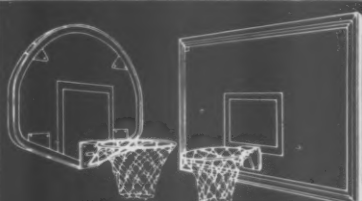
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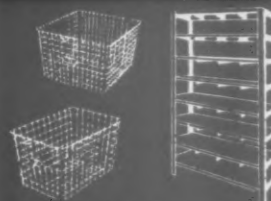
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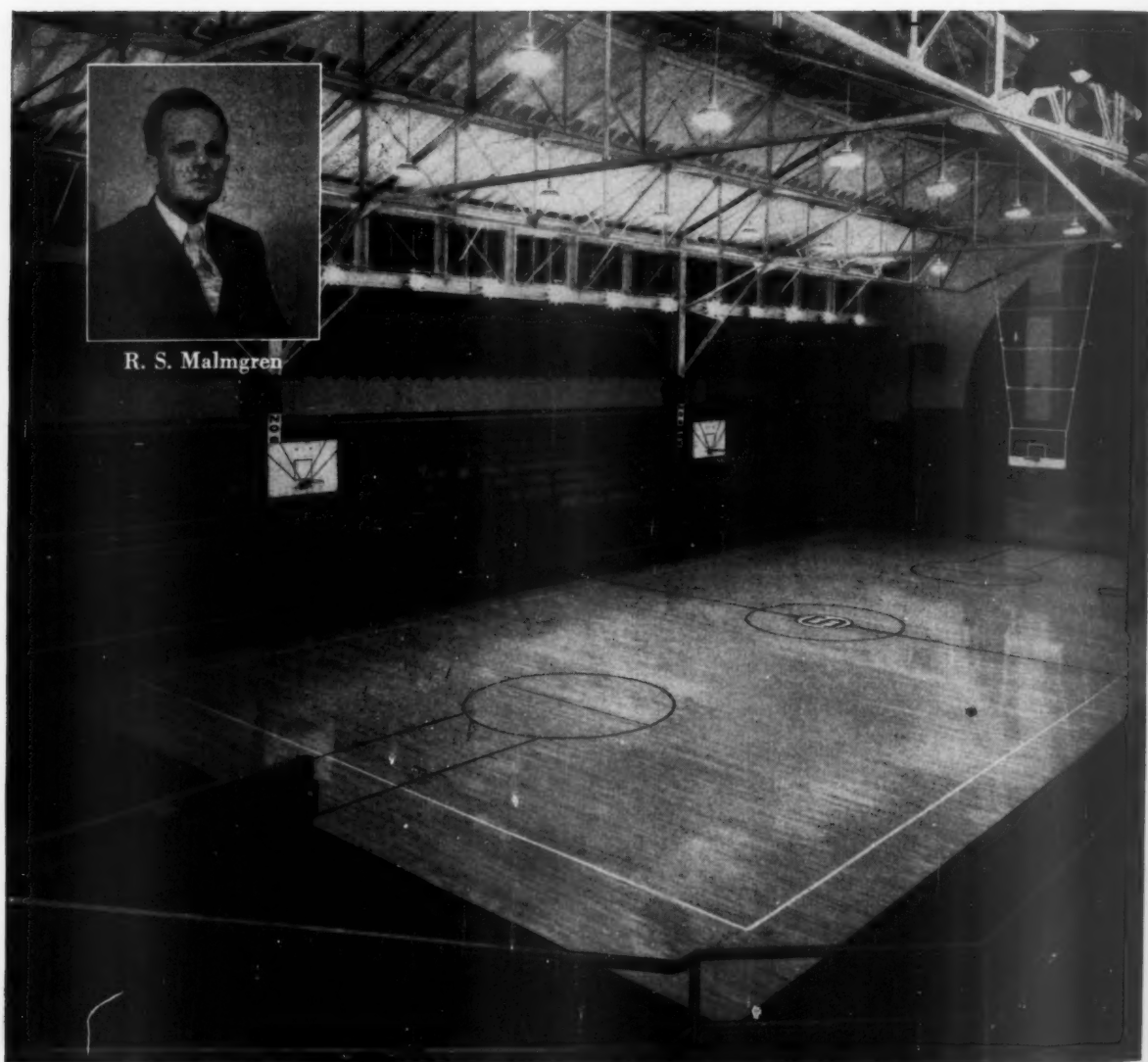
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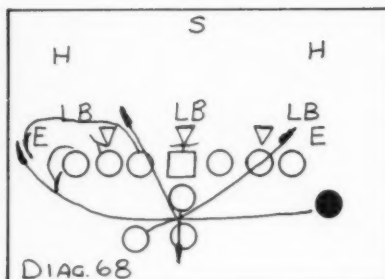
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to the flanker. Peel blocks are employed by the left guard and left end.

In Diagram 24 we showed the Statue of Liberty play run from an unbalanced winged T formation. Diagram 69 shows this same play run from the balanced line with a set flanker. Diagram 70 shows the "old standby" from a balanced line and backfield formation. The right half-back starts to his right and then comes back for the hand-off from the quarterback who has faked back faking a pass. The right tackle and end are called upon to brush block and then come across to give downfield protection.

Diagram 71, from California, shows still another method of running the Statue of Liberty play. In this case the left halfback is set on the right flank.

After pulling the Statue of Liberty play shown in Diagram 71, a California coach runs the play shown in

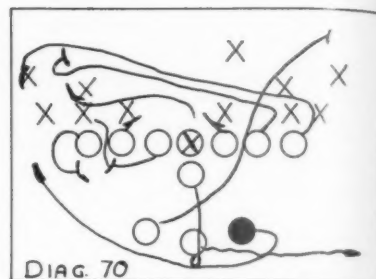
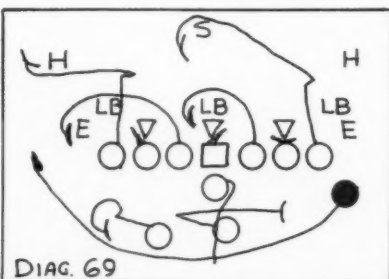
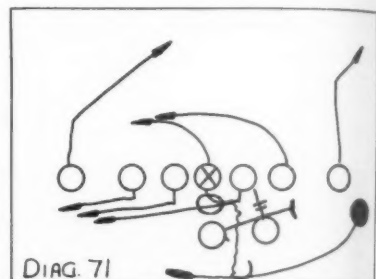
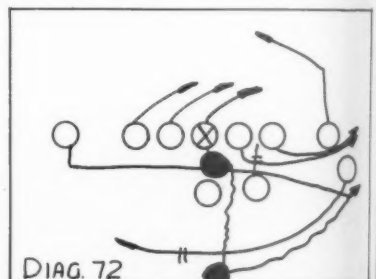


Diagram 72. The quarterback fakes the quickie dive by the right half-back and then drops back into the passing pocket where he fakes a pass. Next, he fakes the Statue of Liberty hand-off to the flankered left half-

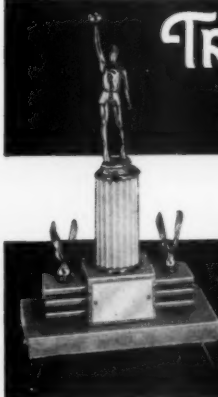


back, and then throws the pass to the left end who has delayed and then moved down the line of scrimmage.

The forward lateral, shown in Diagram 66, was run from the split T



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2. Is there a sight on the axis for more accurate aiming?	Yes	No	No	Yes	No	Yes	No
3. Are the door catches adequate for permanent weather-tightness?	Yes	Yes	Yes	No	Yes	Yes	No
4. Is the floodlight wired, eliminating additional costs?	Yes	Yes	Yes	No	Yes	Yes	No
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6. What is the socket temperature? (UL maximum safe operating temperature 200°C)	185°C	230°C	226°C	227°C	269°C	211°C	259°C
7. What is the cable temperature? (to minimize insulation deterioration)	135°C	181°C	202°C	150°C	231°C	173°C	195°C
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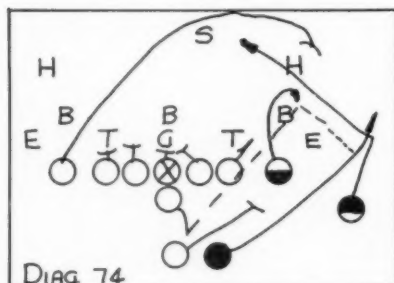
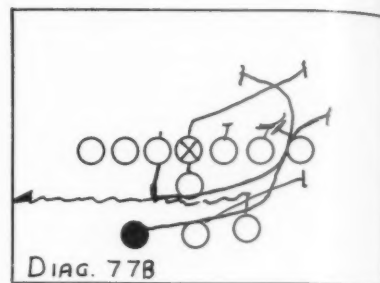
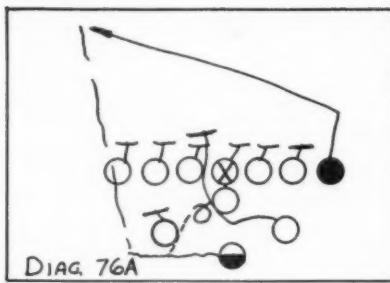
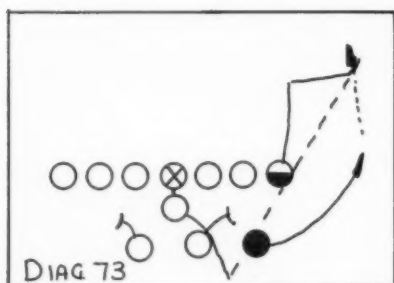


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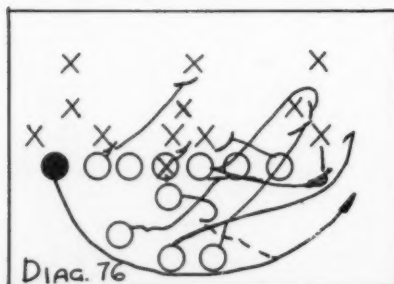
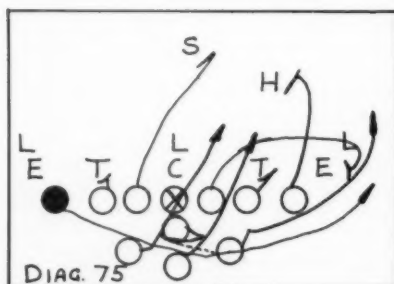
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and had the lateral going to the trailing left halfback. The forward lateral, shown in Diagram 73, is from the regular T and has the lateral going to the right halfback. This play was sent to us from Wyoming and another identical play was received from Nevada.

Diagram 74 shows a forward lateral run from the T formation with a flanker set wide. The flanker attempts to draw the halfback away from the play.

Diagrams 62 and 67 showed end around plays with the end traveling a course close to and parallel with the line of scrimmage. In Diagrams 75 and 76, sent in from Kansas and In-



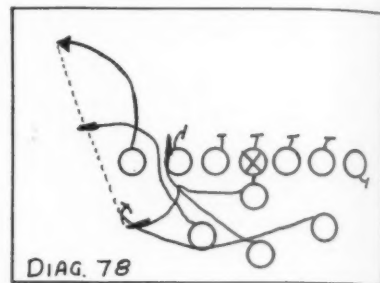
diana respectively, the end bellies back and receives a pitch-out. In both cases the quarterback fakes to the left halfback and then the fullback before pitching back to the end. The principal difference lies in the fact that in one play the right halfback leads the play, while in the other play the fullback is the blocking protection.

The play shown in Diagram 77 is called on a passing down when the defense is expecting a pass. The right halfback goes wide quickly to draw the linebacker. The left end gets the pass and cuts through the off-tackle hole.

In the play shown in Diagram 76A the quarterback spins and fakes a pitch-out to the fullback. Then he fakes a hand-off to the right halfback. Next, the pitch-out is made to the fullback who throws deep to the right end coming across. The fullback on the team that used this play threw left-handed.

The play shown in Diagram 77B is noteworthy because it is one of two T formation plays we received this year that have a man-in-motion. A few years ago a considerable number of the T plays called for a man-in-motion, while in the early days of the modern T formation the great proportion of the plays outside of the "quickies" motioned a back. This is the old T formation power play off tackle, with the right halfback in motion away from the play.

In the play shown in Diagram 78 we see a slightly different way of running the pass play from the belly series from that shown in Diagram

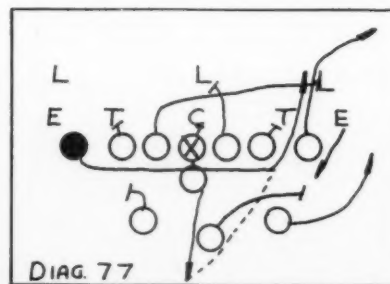
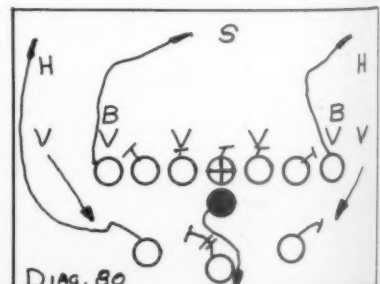
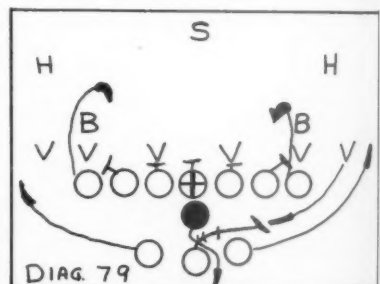


53. The right halfback comes across fast to afford the quarterback protection, while the left end cuts sharply to the outside to draw the secondary.

From central Illinois come the two pass plays shown in Diagrams 79 and 80. The first play is designed to put pressure on the linebackers and hence must be quick. The blocking is straight ahead.

The pass shown in Diagram 80 puts pressure on the defensive halfback. The left end goes down 15 yards and veers in. The right end angles at the safety man and then veers out. The left halfback fakes at the defensive end and goes deep.

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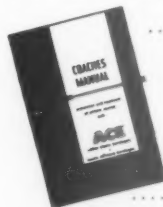
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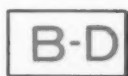
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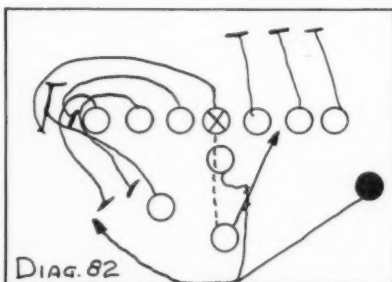
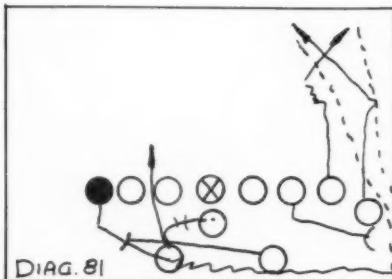
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could pass. Hence, they built the play shown in Diagram 81 around him. First, the quarterback fakes a "quickie" to the left halfback and then a pitch to the fullback. He then hands off to the end who fades and throws to the right halfback, who has been set on the flank, or to the right end.

Diagram 82 shows a play involving a direct snap to the fullback who drives forward, starting a buck lateral play. The quarterback, after receiving the hand-off, fades back, fakes a pass, and then gives a Statue of Liberty hand-off to the wingback.

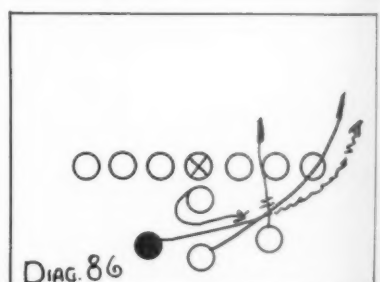
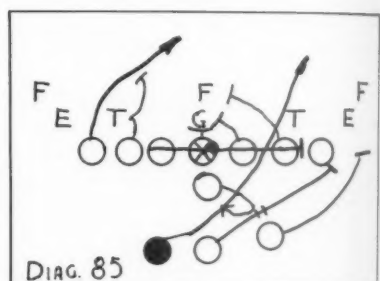
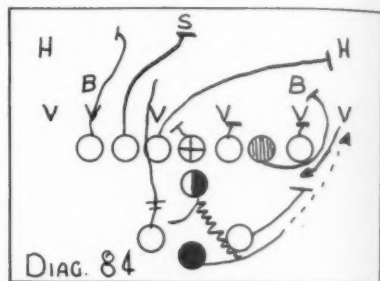
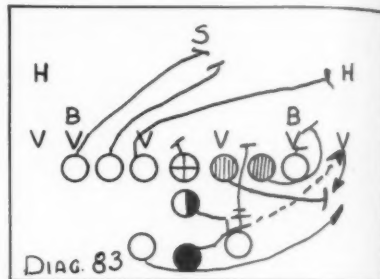
Diagram 83 shows a fullback off-



tackle play. The right end blocks the tackle, while the right tackle drives for the linebacker. The defensive end is blocked by the right guard and the center blocks the man to his left. The quarterback fakes to the right halfback and hands off to the fullback. The left halfback trails the play and is in position for a lateral.

In the play shown in Diagram 84 the quarterback fakes to the left halfback and pitches to the fullback. The line blocking is the same as in the preceding play, except that the end is blocked by the right halfback, thus freeing the guard to work on his opposing guard.

Diagram 85, sent to us from Michigan, shows a fake fullback belly play. The quarterback rides with the fullback, then pulls the ball, and hands to the left halfback for the usual left



halfback trap play.

The next two diagrams show left halfback off-tackle plays. The first, shown in Diagram 86, was sent to us

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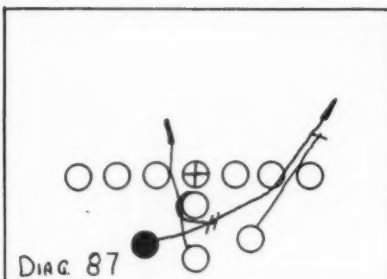


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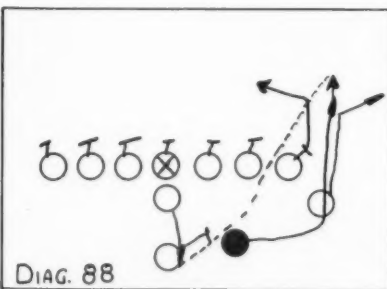


DIAG. 87

from Wyoming and has the fullback leading the play.

The play shown in Diagram 87 has the right halfback providing the interference.

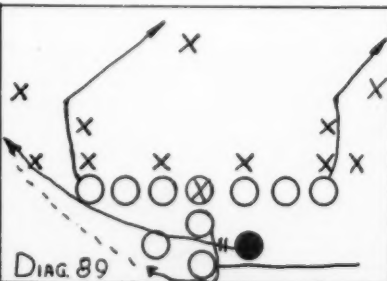
From Massachusetts comes the play shown in Diagram 88. The left halfback sets on the right flank. The quarterback fakes to the fullback. The right end goes down eight yards and cuts in, while the wingback cuts out. The right halfback takes two steps to his right and shoots right up "the alley." The pass is thrown just after he gets by the linebacker.



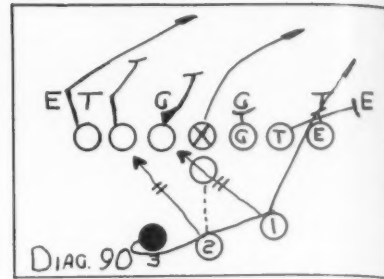
DIAG. 88

In the play shown in Diagram 89, sent to us from Vermont, the quarterback fakes to the right halfback and then hides the ball and fades back to pass. If the fake is executed properly, the linebacker and defensive halfback will be drawn up. The right halfback had a nice change of pace and used it to get behind the secondary.

The quarterback fakes to the right halfback and to the fullback in the play shown in Diagram 90. Meanwhile, the left halfback takes one step



DIAG. 89



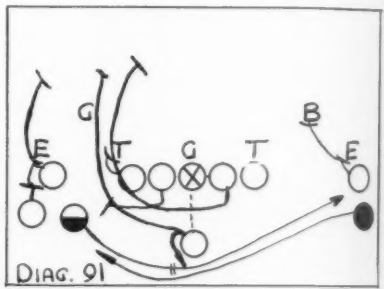
DIAG. 90

to his left and comes right back to take the quarterback's pitch. The end and tackle cross-block and the center is assigned to the linebacker.

Other Formations

Diagram 91 shows a play run by a Pennsylvania team from a wide spread formation. It is a double reverse with pull-outs and will cause trouble for a team that is meeting it for the first time.

The play shown in Diagram 92 is also run from a spread formation.

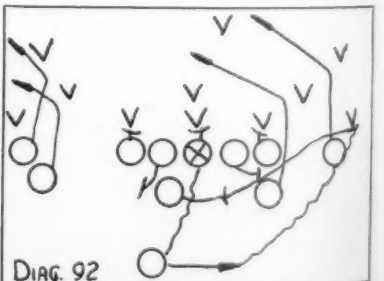


DIAG. 91

This play, sent to us from Texas, is a fullback delay. The fullback blocks or sets up to block, delays two full counts, and then floats to his deep right flat. It is effective as a sideline pass.

Diagram 93 shows a fake kick as used by a West Virginia team. The kicker goes through the motions of kicking and then hands the ball to the right halfback.

From Massachusetts comes the cross-buck run from the Notre Dame box as shown in Diagram 94. The



DIAG. 92

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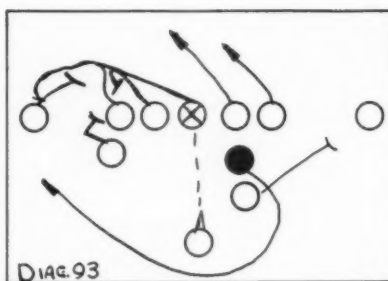
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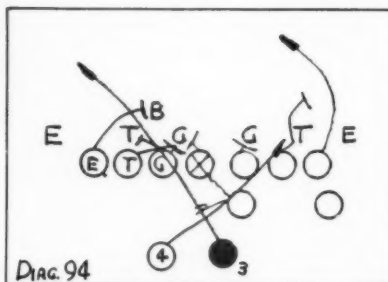
College Park, Md.



ball is snapped to the quarterback who fakes to the No. 4 back and then hands to the No. 3 back. There is cross-blocking by the tackle and the guard.

Diagram 95 shows a buck lateral play run from the box formation. The ball is snapped to the fullback who drives forward, handing off to the quarterback, who pitches out to the left halfback. The quarterback then sneaks down the line and takes the pass in the flat.

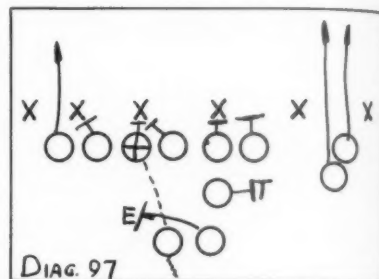
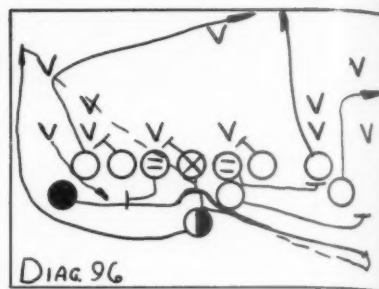
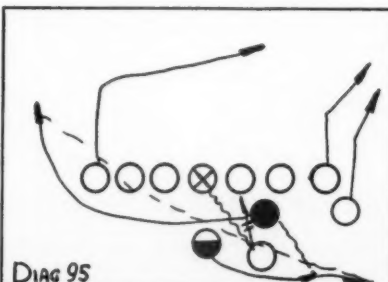
One of the strong Virginia teams has used this double wing play (Dia-



gram 96) successfully for years. It starts off to be a routine off-tackle or end run play. The fullback hands to the left halfback on a half spin, then he continues around left end at half speed and takes the pass.

The last four plays of this year's review are from a quick kick series used this past fall by a Montana coach who had a good quick kicker. Diagram 97 shows the standard quick kick with the fullback backing up several steps.

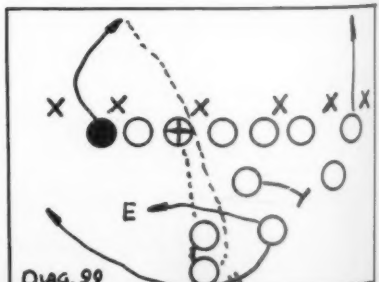
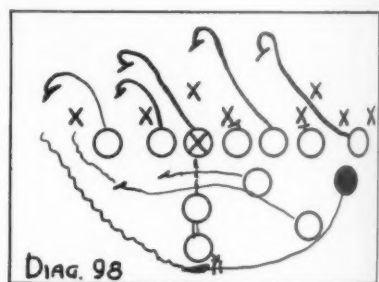
Diagram 98 shows a fake quick

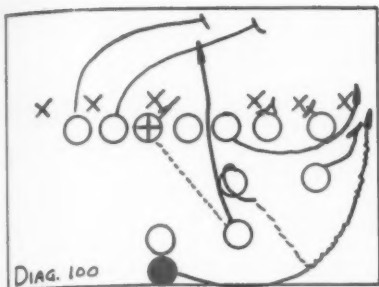


kick and hand back. The fullback backs up for the quick kick, goes through the motions, but instead of kicking he hands the ball to the wingback. The left side is set up with back blocks.

Again, the fullback steps back for the quick kick (Diagram 99). The safety man is driven back by the threat of the kick and the defensive halfback is moved over by the threat of the wingback. The fullback then throws to the left end in the hole.

In the play shown in Diagram 100 the fullback again backs up for the quick kick. However, the snap goes to the halfback who drives forward and hands off to the quarterback.





The balance of the play is standard buck lateral procedure with the pitch-out going to the fullback.

As we conclude this review of football offense, it is our hope that the plays have proven useful to our readers and that they will have gained one or two new twists to incorporate into next fall's offense. Again, our sincere thanks to the many coaches whose contributions have made this review possible.

T and Split T

(Continued from page 32)

assignments. Another fundamental idea is option blocking at the critical point of attack which we like to think turns the toughest job in most running plays into the easiest of assignments. An additional trademark of the split T offense is simplicity insofar as assignments and maneuvers are concerned.

A third test is whether the additional offense will require different blocking fundamentals than those basic to the primary attack. We all know the split T depends heavily upon the offensive line getting off with the count and meeting the opponents on the defender's side of the line of scrimmage. The speed with which the offense hits dictates the type of stance the players use, and also the type of block which must be used in most blocking situations. Coaches using the split T offense can hardly expect their linemen to develop the additional skills of pulling, leading, and trapping, and still maintain the straight-ahead hitting ability so essential to running the basic offense.

There are other tests a coach may use when he is considering the adoption of a new segment of offense, but the three just mentioned are basic to the problem. Offensive additions will seldom conform entirely to the many precepts of a coach's basic attack. However, successful integration will depend upon conformity in a majority of them.

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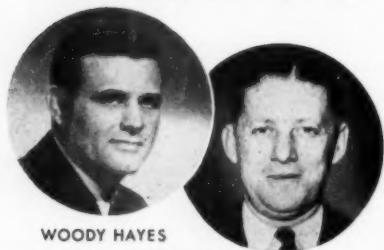
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Directors—K. E. Wilson and H. J. Erickson. For reservations and accommodations write Don Stubbins, Bemidji, Minn.

See advertisement page 64

BOSTON UNIV.

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Staff—Charles F. Lappenbusch.

Information—Tuition \$17.50 per semester hour.

Director—Aldo "Buff" Donelli, Athletic Director, Boston University, Boston, Mass.

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Director—N. C. Morris, 1532 Madison St., Denver, Colo.

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Director—Dr. Carl E. Erickson, Southern Illinois University, Carbondale, Ill.

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Director—Robert Ward, Box 295, University of Maryland, College Park, Md.

See advertisement page 54

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Staff—Forest Evashevski, Forrest Anderson, and Don Canham.

Information—Tuition \$12.00 includes room and board.

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See advertisement page 56

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Director—A. J. Lindquist, 3215 E. Mercer, Seattle, Wash.

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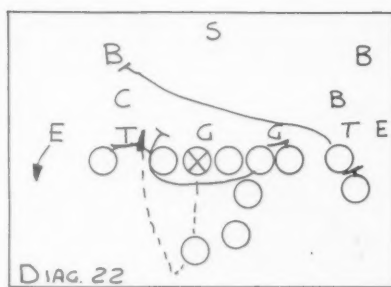
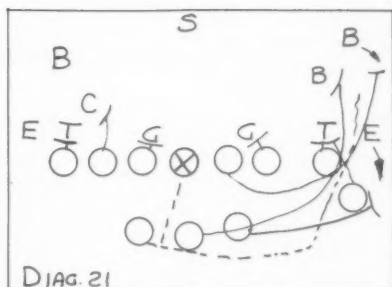
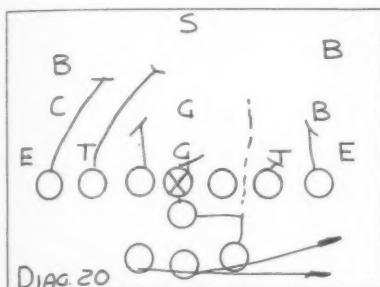
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Vary Your Offense

(Continued from page 30)

school's only undefeated team. Over the past two years we won 20 of 21 games and were riding a 17-game winning streak when we left to take our present position. The team averaged 31 points per game and employed the punt only seven times in an 11-game schedule. The varsity missed 147 minutes of play in 1953 through liberal substitution or slightly better than three full games. We credit our success to the multiple offense used.



As an example, let us follow the hypothetical series of plays outlined. The home team has the ball, first and ten. The quarterback calls the basic T quick-opener or dive play (Diagram 20). The play gains four yards. Out of the huddle, up on the ball, second down, six yards to go, the quarterback calls "set 1, 2, 3," flankering himself outside his right end. The boys use an end run, or cutback to the right, Diagram 21, and gain four more yards. It is now third down and two to go for a first down. Out of the huddle again, only this time the quarterback calls, "shift 1, 2, 3," which shifts the team into

a single wing and runs a weak-side buck or a power play (Diagram 22).

On the next series of downs all three or four plays can be called from the single wing or the T, etc.

Many coaches mix the standard T with the split T which gives added variety.

There is no attempt to give plays in this article. We want to give ideas on how to incorporate pet plays into a multiple offense to vary the style of attack. Offensive line blocking can be simplified by adhering to the following rules when employing the balanced line. The unbalanced line calls for double-teaming which is its

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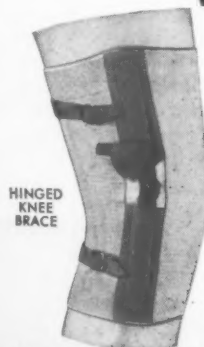
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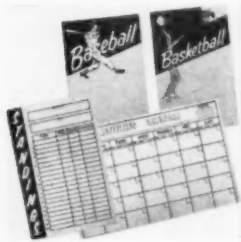
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ONE of the better coaching aids to come along in some time is this free fall tackling dummy release. It can be used on the present dummy and frame and is priced at only \$14.75. The dummy, when tackled squarely, releases and falls to the ground, thus achieving the game-like action of bringing a ball-carrier to the ground. It does not require any adjustments between tackles and we predict that your boys will like it. Gordon Paschka, 426 W. Fourth St., Winona, Minn.



HERE is a really ingenious device and one that we predict will be readily received by the coaching profession. Called "Eraso Posters" these large 14" x 22" posters are surfaced with a patented "Eraso" finish that can't wear out. By using a special "Eraso Pencil," dates, time, and places can be lettered in for each event and later removed easily by just wiping with an ordinary cloth. Twenty-one different posters are available. Catalog available The Program Aids Co., 550 Fifth Ave., New York 36, N. Y.

THE new "Leo Johnson" trackmaster automatic starting block features pedals that slide by hand to the desired position and then automatically lock by hardened steel pressure clips. The greater the pressure, the tighter is the grip. By removing the large track spikes and inserting six indoor shoe spikes the block converts for use on board tracks. The Harry Gill Co., Urbana, Ill.



LAST fall this cleat was tried out by a number of different teams. From the results, the manufacturers are convinced that it will outwear any other cleat made. It is a nylon cleat with a hardened steel tip fused on the end. Tests proved that the cleat will not burr or wear off quickly, leaving sharp edges. The cleat was approved for both high school and college use during the recent rules meetings. Feather Tip Football Cleat, Hudson, Mich.

MODEL No. 710 Olympia are hand-turned Blucher type construction Swedish track shoes. The spikes are welded into the steel plates and are in a two level arrangement which means that the rear spikes are 1/8" shorter than the three front spikes. The shoes are made of specially turned white leather with stripes of red leather to prevent stretching. With the Blucher construction, length is all that is necessary in fitting shoes; the width is the same. Beconta Inc., 381 Fourth Ave., New York 16, N. Y.



main strength.

The basic rule for offensive linemen is to block any defensive man who is positioned directly over him or slightly off his left or right shoulder. If no defensive player is so positioned, he releases and goes through for secondary blocks.

On even numbered defensive lines such as the 4-4-2-1, 6-2-2-1, 6-3-2, and 8-3, the center normally will release and is responsible for the inside linebackers to the weak side on a four-man secondary, the middle linebacker on a three, the weak-side linebacker on a two, and the lone linebacker on a one. The tackles or ends, depending upon the play and defensive positions, will release as follows: The strong-side tackle or end will take the strong-side linebacker. The weak-side end releases on the defensive halfback on his side. The weak-side tackle will contact the defensive lineman and release on the defensive safety man.

On the odd numbered defensive lines such as the 5-3-2-1, 5-4-2, 7-1-2-1, and the 7-2-2 the guards will normally release. The weak-side guard is responsible for the inside linebacker to the weak side on a four-man secondary, and the outside linebacker to the weak side on a two or three-man secondary. The strong-side guard is responsible for the inside linebacker to the strong side on a four-man secondary and the middle linebacker on a three-man secondary. The ends on a 5-4-2 and 5-3-2-1 will release as follows: The strong-side end is responsible for the backer-up on the strong side. The weak-side end is responsible for the defensive halfback to his side, and the weak-side tackle contacts the defensive lineman and goes through for the safety man.

By plotting these rules against the different defensive patterns on a blackboard they will become very simple and familiar to the coach and the boys. It will be easier for the boys to comprehend the varying offensive pattern because the blocking will be easier to understand and the result will be a better execution of these skills, under game conditions. The multiple offense should be made as simple as possible and as much variety should be added while simplicity is maintained.

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New Formula

(Continued from page 40)

The real value of the walk should be interpreted in terms of the runs which result from that walk. Coaches who wish to evaluate truly the base on balls can do so by keeping records indicating to what extent the walk has contributed to the actual final scoring result.

The base on balls, while it is an asset in most cases, can be a liability in terms of the intentional pass. When the one good hitter in high school play is walked with just first base open, it is a liability, particularly when he is followed in the batting order by a comparatively weak batter. From the standpoint of clutch hitting this one good hitter should be given more freedom to exercise his ability. In this way maximum use is being made of the ability. From a defensive standpoint the coach can use this information to advantage by walking that type of hitter in a similar situation.

The formula points out strengths and weaknesses in hitting. For example, a team could be successful in getting runners on the bases, yet it might not score many runs. It is interesting to note that the on base average of the Pittsburgh Pirates was almost as good as that of the New York Giants, yet the difference between the two teams in runs scored was considerable. This was due to the difference in clutch hitting which the formula brought out. The Giants had a much higher clutch hitting average, while the Pirates just could not bring their men around the bases to score. Here is a proven strength for the Giants, and an established weakness for the Pirates.

Individual strengths and weaknesses in regard to on base average, clutch hitting, and power hitting can easily be detected through substituting figures for letters in the formula. This substitution of figures can provide valuable information in arranging the batting order. It should develop a better grouping of batters, and inevitably lead to better results.

On the defensive side, the formula should divulge which pitchers are the control pitchers, and which ones are the clutch pitchers. A scarcity of walks and hit batters would indicate good control.

A pitcher who gives up a fair number of hits but is stingy about relinquishing runs should be regarded as a clutch pitcher. This type of pitcher bears down more with men on base,

and is in all probability pacing himself. He is apt to be a more experienced type of pitcher who can be depended upon to a greater extent in the clutch.

However, it must be borne in mind that, *all that glitters is not gold*. This formula is neither all-inclusive nor foolproof. It is based on statistics obtained over a season's play of 154 games. While it is true that an equating procedure should prove productive in mid-season or thereabouts in the major leagues, there is still some doubt concerning its validity when used on the high school level, due to a scarcity of statistics. Also, the sta-

tistics that are compiled may vary considerably from one season to the next due to the changeable factors encountered in high school play. Some of these varying factors are physical maturity, years of playing experience, incomplete statistics, short schedules, and early season weather conditions. The formula centers around men who are physically mature, and more consistent in their play. Thus, there are fewer varying factors among these men than among those in high school baseball.

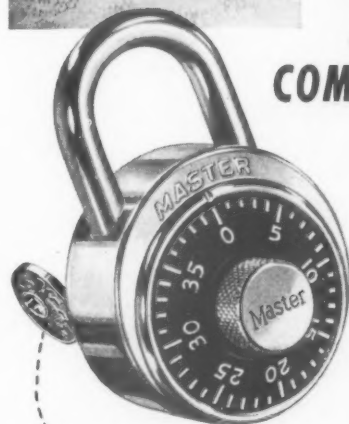
The formula does not provide for the team hitter. He is the batter who tries to hit to right field with a run-

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ner on first base and none out. Or he may be the batter who tries for the extra base hit with two outs and nobody on base.

It does not take into account the mental outlook, and emotional drive of the player which can be either an attribute or a liability. Determination, desire, courage, and imagination are not measurable in the formula. However, they are the motivating forces that dictate the statistics upon which to equate in the formula.

Certain physical properties which bless each player in varying degrees are not taken into consideration. These items are keenness of eyesight and muscular reflex time. These items are extremely important in batting success.

The formula does not provide for players who get on base due to defensive errors. In high school baseball this is often a major item due to the fact that there are so few batters who can hit the ball consistently. A secondary school athlete who is able merely to hit the ball fairly consistently can have a respectable on base average through the weaknesses of the defense. The number of strikeouts per game in high school baseball further proves this point.

Some provision in the formula should be made for base running ability through statistics on stolen bases or in regard to the ability to take the extra base. Speed is an essential part of success in baseball, and some pains should be taken to provide for it in the formula. It certainly has a greater importance than hit batsmen in the scheme of baseball success.

We take exception to some of the ideas expressed in the original article concerning runs batted in. While the position in the batting order, and the number of runners on base has an influence on the number of runs batted in, we feel that certain players have more courage, confidence, and a nervous system that dictates greater success in runs batted in than do their teammates. Some batters cannot assume much responsibility. This type of batter, when put fourth or fifth in the batting order, will prove less productive by comparison with a teammate. He should be put near the top or bottom of the batting order, depending upon his speed and other factors.

Ability to make the double play is important in team success. National League records for 1954 show the difference between the first and last place teams in double plays to be 58. This is a greater difference by far than the hits by pitched balls difference.

Clutch fielding cannot be measured except in appreciation by the manager or coach. In this respect we think of Willie Mays of the New York Giants. Perhaps the greatest value of the formula lies not in replacing the traditional statistical method, but in its addition to the method, plus subjective appreciation of everyday play. A team must still be strong through the middle, and have good pitching in order to win a pennant.

Urbana Shift

(Continued from page 38)

ther and used the idea on both sides and one end of its East Junior High School. In 1951, Arlington Heights, Illinois, High School used this plan on both sides of its new gymnasium, but went up one story higher. In 1952, Crystal Lake, Illinois, used the double-decker plan on both sides and both ends of its mammoth new fieldhouse. This horizontal shelf construction saves approximately \$20,000 in building costs.

During and following World War II, thirty-eight states passed laws requiring that more time be devoted to participation in athletic activities. The resulting increased class enrollment created a need for more gymnasium classes and additional instructors.

The double-decker balcony shelf plan made more teaching stations possible, and permitted a wider variety of athletics. However, there was one disadvantage, all classes were held in the same big room.

Urbana, Illinois, Junior High School appeared with a *first* when it paved the way for dividing its new gymnasium into many separate classrooms. This school adopted the double-decker balcony shelf plan, and now has in use the longest and widest of platforms for those extra athletic activities. Because every new structure should show an improvement over the preceding ones, Urbana carries the folding electric door idea, along and parallel to, the balcony rails. This unique idea permits each balcony shelf to be walled off into separate classrooms, and completely muffles any noise that might come from a different athletic group working on the main floor. The varsity basketball court is large enough for two teaching stations and the stage serves as another classroom. Thus, five different classes may be in progress at the same time.

This new junior high school gymnasium serves as the basketball arena for the high school. There are never

enough seats for all the spectators at a contest when a championship is at stake; gymnasium classes are overcrowded in nearly every school; and friends of the institution are frequently turned away at school functions because not all can get inside the doors. Urbana solved all three of these distressing problems by making use of these unparalleled efficiency measures in the new gymnasium.

Balcony decks serve as a stage when there are a variety of numbers on the program such as music festivals, class night features, and during student money-raising programs which consist of the school circus, carnival, and stunt shows. Both the stage and balcony are closed. When the first act ends on the stage, another progresses immediately from the west balcony. A new scene is then arranged on the stage. The third number appears on the east balcony and so on, around again, with no delays in the program while stage props are changed.

This new gymnasium at Urbana is the result of long and careful planning. Before the building program was decided upon, Supt. C. C. Loew asked each teacher to submit a report on his position, what he was doing, and what facilities and equipment he was using. Following this report he asked each teacher to present a second article on just how he could improve his teaching, provided the school board gave him all the space, equipment, and facilities he desired, so that he could teach to the maximum of his ability. Said Supt. Loew: "This second paper really separated the men from the boys, and supplied enough good ideas for a complete textbook on the technique of teaching."

The majority of teachers are now on permanent tenure, and will be on the job for a number of years. Therefore, the only efficient way to start on a building program is to find out what the teachers need in their new quarters, in order to do the best possible job of teaching. Then the school should try to fulfill as many of their requests as the budget will permit.

Numerous visits to inspect other recent building projects were scheduled by the Urbana committee. When this type of planning is followed every new construction becomes just that much superior to previous buildings.

When teachers have a part in the drawing up of their respective needs the new school shows many innovations for better teaching. Efficient custodians suggest new methods that help solve maintenance problems.

No matter how carefully a new project is planned, errors will result as construction progresses. By making a list of errors that have been observed at the schools visited, the committee is insured against a repetition of the same mistakes.

A manufacturing firm lists the following economies when the double-decker balcony shelf plan is used: Fifty per cent reduction in seating costs. Sixty per cent increase in usable floor space for gymnasium classes. Forty per cent increase in seating capacity at contests between athletic teams.

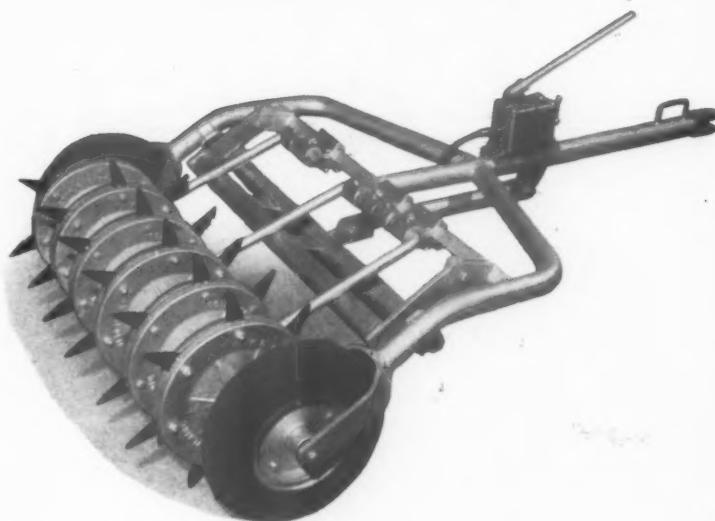
All this efficiency occurs inside the same four walls which the architect was engaged to build. In addition to the actual cash savings resulting from using this new plan, the value of the increased floor space for athletic classes during the next 40 years will be so great that it cannot be measured. The increase in gate receipts will make possible many additional pieces of athletic apparatus for the students.

Now that the tidal wave of war babies is entering junior high school, we will need another building boom during the next ten years for the secondary schools.

Many educators who are using the new balcony shelf plan in recently constructed gymnasiums are crowded, even though they have just moved into the new quarters. These administrators wish they had built larger gymnasiums. New gymnasiums are still being built on the obsolete, costly plan originated by Vespasian.

When an old school plant is enlarged, the logical procedure is to spread out from the central unit. Shifts in population, and recent community unit legislation, are creating many entirely new school sites. In such cases the gymnasium should be built first, as a triple-decker balcony shelf structure, with the horizontal decks on all four sides. Then the remaining rooms of the school should be constructed around this unit. Thus building costs, outside wall space and subsequent heat loss, roof expense, and maintenance expenses will be reduced. Since health is the first cardinal principle of education this important section, the gymnasium, should be given the place it deserves in the school plant.

A complete athletic program for all students will be the greatest deterrent possible to juvenile delinquency, and it will produce a great deal of potential athletic ability for all teams in high school, college, and professional sports.



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Scientific Basketball, by Howard A. Hobson. Published by Prentice-Hall, New York 11, N. Y. Two hundred and sixty-seven pages. Price \$4.95.

This is the second edition of an excellent text which was first published in 1949. The new edition includes 26 new tables and many new interpretations of the results of previous studies. The book discusses, as the name implies, from a scientific standpoint such items as scouting, shooting, recoveries, errors, the tall man, a proposed area-method of scoring, and many other important fields of research. It also contains an up-to-the-minute bibliography.

Archie's Little Black Book, compiled and published by H. Archie Richardson, 1234 North Formosa Ave., Hollywood 46, Calif. Ninety pages. Price \$1.10 by mail.

This is the second revision of the second printing of this book which appeared first in 1953. We said it before and we say it again, we can't think of a better way of promoting interest in track than to have several copies of this booklet available in the coach's office and in the library. Truly, it is the source book for track and field. We guarantee that you will feel repaid many times over if you secure one of these books.

Physical Education Syllabus, By James Long, Harold Barrow, and Marjorie Crisp. Published by Burgess Publishing Co., Minneapolis 15, Minn. One hundred and sixty-eight pages. Price \$1.75.

This digest size paper-bound book is designed as a textbook for students in physical education at both the high school and college levels. Basic information concerning the history, place in the program, facilities, playing terms and rules, fundamentals and strategy of 22 different physical education activities is included. There are also sections on posture and body mechanics, physiological principles, and practical health facts. The authors, who are members of the staff at Wake Forest, designed the book so that it will fit into a coat pocket.

From Here and There

(Continued from page 4)

Michigan Tech, coached the famous Rideout twins when they were running at Tuscola, Illinois, High School . . . The average population for the 16 towns represented in the finals of the Iowa girls' basketball tournament was 837. The smallest town had a population of 50. Five of the 12 members of the squad were seventh or eighth graders.

Tackling

(Continued from page 34)

thetic, must be highly fluid, and capable of endless adjustment. Early drills as well as the later ones should be as realistic as possible. Equipment such as swinging dummies which do not, and cannot, simulate the action of a live runner should not be used. Workouts should, if necessary, be rigged to insure successful and satisfying experiences and should be graduated in easy stages.

The following may be regarded as a possible approach to the problem we have outlined: During the early or exploratory period the boys should be paired so that they will approximate each other in experience, size, and ability. Then they should be told that for the next fifteen minutes, or whatever amount of time the coach determines to allot, to practice tackling, nothing else. Each boy should help the other, but beyond this point, each should be left to his own devices. The activity should proceed at a leisurely pace and in a highly permissive climate. There should be no whistle blowing, no tackles by signal, no high pressure, and no derogatory comment.

Then the coach should call a general squad meeting and conduct a critique in which all should be encouraged to participate. It should be brief and devoted to the positive aspects of the drill. Just what have we learned? How will it affect our defensive game? What particular component shall we emphasize in tomorrow's drill?

The second step with respect to drills is to set up a situation which simulates game conditions as best the coach can devise. Diagram 1 shows one type of drill. In this drill the player receives the experience of meeting the ball-carrier in approximately the same situation that is

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found under game conditions. It favors understanding of the wholeness of defense, and provides a setup in which the player may gain confidence in himself to produce under a stress situation. On the other hand, it is a dangerous drill to use if the players are not ready for it. The focus is too sharp. Failure is too personalized. The coach should avoid placing individuals in positions in the setup where they are likely to fail.

This setup is excellent provided it does not appear too early on the practice schedule. It furnishes the learner with a situation which should be clearly meaningful to him in terms of his own role in the total team defense, and it is exceedingly challenging. The setup is sufficiently flexible to permit the learner to gain experience in adjusting to a changing situation. A player is confronted with the same problems he will be forced to solve under actual game conditions. Regardless of the drill or drills selected, they should provide the boy with criteria for self-appraisal and at the same time be conducted with a minimum of pressure. Most drills have one definite shortcoming; they take a great deal of time. A coach who is constantly working against the clock may hesitate to spend the necessary time on drills of this nature. However, they pay off in terms of lasting defensive skills.

Intersquad scrimmage is the ultimate in controlled setting in which the player has had the opportunity to seek a clue to the solution of the problem of stopping a ball-carrier. Here the setting is as realistic as can be obtained in controlled practice, and the outcome can be measured in terms of *did you or did you not stop the ball-carrier?* Success in scrimmage is highly correlated with success in the real game. However, it should be used sparingly as a means of teaching tackling. As the season progresses, and the boy grows in confidence, scrimmage may become the best practice setup available.

In summary, what has been said of the matter of teaching tackling could very well be said of teaching all motor skills. Certainly a rich context is desirable. It is essential that drills be made meaningful to the learner, and a sense of success should be fostered. However, teaching tackling is almost unique as a problem because as an activity such heavy emphasis must be placed on that hard-to-define ingredient, courage, sparked by the equally elusive factors, desire and confidence. The

skill taken by itself is relatively simple, but developing it as a factor of squad morale is something else. Successful coaches solve the problem, each in his own way, but in the final analysis the end product is a boy who has a firm understanding of the nature of his role in defense, and one who has supreme confidence in his ability to play the part.

Pole Vault

(Continued from page 20)

Now add in the extra height obtained from having the C.G. at least 3 feet above the ground, the foot spring, and the elasticity of the vaulting pole. These would more than cancel out the negative forces due to the friction of the pole in the slot, vaulting slot depth, and wind resistance.

This age of the atom would also seem to be a glorious age of barrier crashings. The supersonic jet, the super-speedy Bannister and Landy, and in this article an attempt has been made to show the 16 foot vault, a breath-taking super vault, that can become a fact in the very near future. Then, too, the 17 foot dizzy height is a strong possibility if the vaulter is built for it. Armed with this knowledge of a new frontier in vaulting,

the last problem is the eternal quest — to find the right man to do it.

Hop Step

(Continued from page 16)

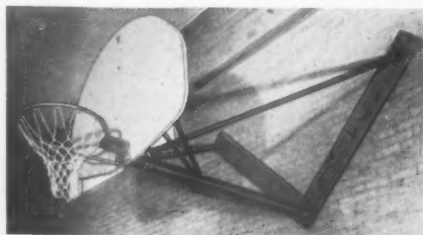
over 23 feet, yet he has jumped over 53 feet. Great speed is not necessary to reach 48 to 50 feet in the hop step and jump if the jumper possesses good form. Many Japanese school-boys in past years have bettered 48 feet and several have done over 49 feet. Emphasis in this event must be on form and its elements, rhythm, and balance.

The Hop Mechanics

The hop is kept low in order to reduce the landing shock to a minimum and to conserve momentum so that the jumper does not travel too far on his first effort. We like to think of the lift from the board as a passive spring rather than a maximal foot stamp as in the broad jump. A jumper float-drives from the board more forward than upward and he must make a definite effort to stay down. This drive or thrust of the free leg must be more forward than in the broad jump and the focus of attention and head orientation must be

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straight-ahead to the front. It is sometimes best for the jumper to look toward his first hop landing marker which should be very distinct. Markers should always be used for the hop and step landings. A jumper should remember not to rear back on the take-off.

In order to master the low driving take-off, the standing hop step and jump should be practiced 20 to 30 times a day. For this technique the jumper should stand on a mark with one foot at least 20 feet from the jumping pit and hop step and jump into the pit. He should reach 24 feet almost the first day and should aim for at least 28 feet if he expects much out of his running hop step and jump. He should fall forward from the take-off mark and drive hard with his free leg, thus building up as much speed as he can in the step for the final jump. If he cannot reach 28 feet after a few weeks of practice, something is seriously wrong with his mechanics.

In the hop and step landing the jumper should not permit his landing foot to get out too far in front of the center of his body weight (Illustration 2). If his foot is extended too far in front of his body, it will either collapse the landing leg due to the angle-force combination or it will force him to take a quick step.

In the carry from the take-off board the jumper should keep his body canted forward all the way from the hips up, and keep his chest up and his arms swinging freely away from the sides for balance. He should not drop his head or look down. If he permits his arms to drop below the level of his hips and waist very much or to swing backward, the referred effect of this movement causes his waist to buckle. The buckling of the body at the waist in the hop landing, when the arms drop, is a referred kinesiological effect and should also be watched in practice at the standing hop step pit.

Arm Action

Most track coaches spend too much time worrying about the arm action of their distance runners and pay little attention to the arm action of their jumpers.

In the hop step and jump, the arm action is of tremendous importance. Arm action in this event should imitate the action of the breast stroke swimmer. Notice the arm action of Boris Zambimborts in the accompanying illustrations. The forward-upward thrust of the arms should be co-ordinated with the drive of the

free leg in order to create additional inertia and augment the spring. Arm action, particularly where the jumper's arms swim forward, as in the breast stroke swimming action, makes a major contribution to balance in the hop step. The jumper should literally swim through the air.

In general, most hop step jumpers use their arms not at all or not enough. Arm thrust should be more upward than forward only in the final jump take-off. Only by holding his arms high and away from his sides, while he is swinging through the hop and step, is the natural effect of the dropped arms, which tends to cave in the jumper at the waist in landing, avoided. In order to demonstrate how important arm action is, the jumper should try the standing hop step and jump with no arm action, then with his natural action, and finally with the suggested swimming action.

Action in the Step

Assuming that the jumper has come through the hop with good balance and in a good position with fair speed, what does he do next? In covering 12 to 14 feet in the step he cannot hope to float off the hop landing into the step as most jumpers attempt to do. A maximal driving effort must be made for the step because his driving leg is trying to collapse under him at this time.

Too many hop step jumpers use a type of lift we may label *passive spring* from their hop landing. This lift may be perfect for the hop take-off at high speed, but is most undesirable at this time. Most jumpers have a natural tendency merely to step forward from the hop landing as quickly as possible. This quick stepping can usually be traced back to too high a hop or a landing position

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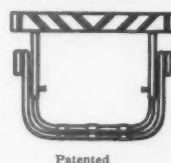
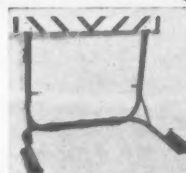
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in which the landing leg is permitted to get too far in front of the main center of body weight (Illustrations 2A and 2B). If the jumper's arms drop down at this instant, the center of his body weight falls backward and helps to cave in his body at the waist, thus necessitating a quick step to recover and continue forward. The jumper quick steps to save himself as the angle becomes greater. He should try to keep this angle as small as possible. When the action is hurried too much, most jumpers are lucky to obtain 10 feet with their step and 12 feet is unusual for them.

In training and form work the jumper must set a goal of 12 to 14 feet for himself and perfect his form to make this greater step possible. We feel that a step of 15 feet is too long for even topnotch jumpers and often kills the final jump. It stretches the jumper out too much. A step of under 12 feet should never be permitted except in the case of a beginner or in training. At this time the arm action is of prime importance and should approximate the pattern described previously.

The action of the lead leg in the step is the key to getting a fine step and making or breaking a good hop step jumper. Most jumpers who stumble onto the principle seldom bother to pass on the idea since it can make a mediocre jumper great. As the jumper leaves the ground in the step, he brings his lead leg up to a position wherein his knee is waist high and his thigh is parallel with the ground. He holds his knee in this position and takes a ride. This movement might well be called *riding out the step*.

A jumper should not attempt to hurry this action and should use a vigorous knee thrust plus leg drive from the ground. He should not reach down for the ground and should keep his body canted forward as much as possible during his flight since this will keep his leg from buckling on the step landing and add to his distance. Now, he should swim through the air with his arms to help his leg action.

If the jumper falls back on his heel too far on the step landing, he may get into a good position for the final jump action, but he will not have any speed left to make a decent jump. A definite floating feeling must be sought in the step. The action is and should seem slow and deliberate. Using a slow action does not mean that the jumper will be losing momentum. He will be gaining distance if his form is good. Jumpers should not loaf off the step take-off.

The knee action described for the step take-off is very much like the original drive of the low hurdler which has been purposely elongated.

When the jumper lifts his knee in the step action he should not thrust out his foreleg and foot or it will strike the ground prematurely and shorten the step. The jumper's foreleg should be extended just before the landing.

Discussion of the final jump is superfluous since this action is the same as it is in the broad jump. One suggestion may be helpful. Some men get better final jumps if they throw their heads back on the landing of the step and look upward.

Training Suggestions and Conclusion:s

It is obvious that an individual must have a strong back and good knee structure in order to be a success in this event. If these do not exist at the outset, considerable time must be spent on hopping exercises, high jumping, hurdling, and stadium climbing. High jumping will be useful to develop strength and co-ordination in the off leg. Hurdles help the jumper develop a relaxed running style. Training should always be done on the grass or a soft runway. A jumper should always hop from his strongest leg since this leg must deliver the most force and take the greatest shocks. He should not jump for distance in practice—43 to 44 feet is good enough for form work and here the rhythm can be perfected. The jumper should try to develop a dah-dah-dah rhythm, instead of a typical dah-dit-dah rhythm. The best way to perfect the step action in addition to working with the standing hop step and jump is as follows:

Set a low hurdle in front of the jumping pit where there is a reasonably firm take-off surface. Place a marker in the pit 14 to 15 feet behind the take-off marker which will probably be six to seven feet in front of the hurdle. Now, the jumper should drive off over the hurdle, using step action and he should hold his lead knee aloft as described previously. He should see that he does not lean too far back in the take-off and keep his body canted forward throughout the ride. The jumper should not reach down for the pit, but should allow his body weight to fall all the way down on his flexed knee in the sand. This will help to develop the leg muscles.

A goal of 14 to 15 feet should be set during this practice and the jumper should not compromise himself by cheating on this distance. This prac-

tice should be repeated three or four times weekly and 20 to 30 times each day. The step technique should be used when the standing hop step and jump is being practiced. When the jumper is ready to put the form together he should always set out cloth markers indicating his intermediate goals. In the beginning the first markers may be spaced at 14, 11, and 14 feet, then 15, 12, and 15 feet and later at 17, 13, and 16 feet. In setting out the markers the same proportions should always be maintained. The jumper should shoot for 19-14-17, which is a very respectable 50 foot leap well within the realm of possibility for many 22 foot broad jumpers.

Some known data on how various jumpers of the past spaced their leaps follows:

Jumper	Hop	Step	Jump	Total
Da Silva	18-6	14-6	20-2½	53- 2½
Tajima	20-4	131½	19	52- 5½
Togami	19	14	19-2	52- 2
Brown	18-6	12	20-5½	50-11½
Romero	20	15	15-4½	50- 4½
Metcalf	18-6	13-1	20-4	51-11
Ganslen*	19-6	13-1	16-1½	48- 8½

*In this competition Ganslen had five jumps fair over 48 feet and one foul in excess of 50 feet. Metcalf's pattern is typical of the Australian emphasis on the final jump which puts the jumper in the position of trying to make the greatest distance with the least velocity.

Concluding Remarks

A jumper should remember to hop as low as possible, commensurate with the speed he is using in order to keep the landing shock minimal and to conserve momentum. He should use his arms freely and try to keep them away from his body since they may be the key to his success. Balance and arm action are interdependent functions in this event. Each action should be made deliberate and rhythmic. The hop should be kept within limits, for too much hop will kill both the step and the final jump. A jumper should never hop more than 20 feet and never less than 18 feet. He should try to get at least 32 feet on the first two efforts and let the final jump take care of itself. In this way he can make 45 feet with a 13 foot jump. Work on form should be emphasized. The jumper should think before he leaps because once he is off the board he will not have any time for thinking. In this event control should never be sacrificed for speed. At the present time there are three places open in the 1956 Olympics in the hop step and jump.

A Call for Leadership

ARE today's youth softer than the youth of 10, 20 or 30 years ago? The answer is not to be found to the best of our knowledge. However, a number of leading authorities concur with our belief that today's youth are soft.

In 1953 Dr. Hans Kraus and Ruth P. Hirschland, Research Assistant at the Institute of Physical Medicine and Rehabilitation of New York University, conducted a study among urban children. Their findings indicated that, "American school children appeared to be victims of an exercise deficiency due in part to mechanized modes of transportation and to our seemingly growing interest in passive pursuits such as viewing television and watching sports events."

Under the able guidance of Mr. Ford Hess, some students at Slippery Rock Teachers College conducted, during this past fall, tests on children in rural areas. The previous quotation is taken from the preface of their report. The preface continues, "Because the original study was done on urban children it seemed appropriate to test children in rural areas where there is probably more opportunity for physical activity."

The findings of the Slippery Rock study were comparable to the findings of Dr. Kraus and Mrs. Hirschland. "Their (Kraus and Hirschland) rate of failure of incidence was 80 per cent; ours was 79 per cent; and the significant part is the fact that the study of Dr. Kraus and Mrs. Hirschland was conducted on urban and suburban children and our study was on rural children."

The results of these two studies would seem to indicate that there is some basis for the beliefs shared by many that our youth are soft.

The next problem then is to find out what to do about it. If we are to counteract the softening influences of modern-day life, a more extensive and vigorous physical education, intramural, and athletic program is a good place to start.

If we are to have a more vigorous program, we must have more vigorous leadership. The leaders must realize that it is impossible to develop a vigorous program at the sophomore age level when competition before that age level is frowned upon. They must also realize that when they cancel athletic contests because of inclement weather they are not building a vigorous citizenry.

If the leaders will face up to the facts, they will find many associates eager to assist. We know this fact to be true from the letters which we have received.

Somewhere that missing something must be found which used to make every driveway a basketball court or made vacant time on a tennis court a premium. We think it is up to the physical education leaders to find and then rekindle this spark.

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West Point Products Corp., 68, ☐ Information on the "Aerifier"

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Eastern Coaching Clinic, 58, ☐ Information
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Texas High School Coaches Assn. Coaching School, 32, ☐ Information
Upstate New York Basketball Coaching School, 66, ☐ Information
Utah State Agri. College Coaching School, 69, ☐ Information

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Feather Tip Football Cleat, 60, ☐ Information
Gill Co., Harry, The, 60, ☐ Information
Paschka, Gordon, 60, ☐ Information
Program Aids Co., 60, See listing under "Books"
Rawlings Sporting Goods Co., 60, ☐ Information

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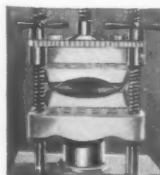
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